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ABSTRACT

This publication is the teachers' manual, level 8, of the Instructional Support Systems (ISS) Program, which was developed by the Community School District 18 of New York. It presents seven topics: (1) fractions; (2) decimals; (3) integers; (4) geometry; (5) measurement; (6) algebraic concepts; and (7) graphs, probability, and statistics. Each topic consists of several modules. Two types of modules (standard and advanced) and a suggested module sequence are presented to better meet the needs of all the students. The standard modules contain instructional objectives which introduce and develop new concepts and skills related to algebra and geometry. The advanced modules contain instructional objectives which offer mathematical enrichment. Activities are listed in the order of objectives to which they relate. Activities generally consist of examples and problems which lead to mastery of the specific objectives. Suggested durations for level eight modules are also included. (HM)

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CSD-18
ISS-BASED
MATHEMATICS PROGRAM
TEACHERS MANUAL
LEVEL 08
CURRICULUM
1978 EDITION

FUNDED IN PART BY TITLE IV C GRANT

SE 027 740

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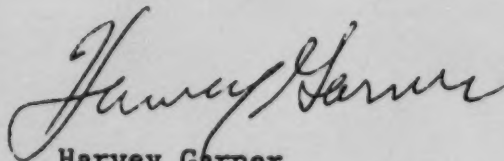
September 8, 1978

Dear Colleagues:

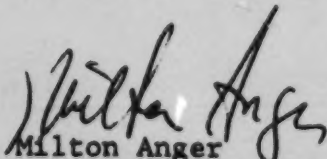
Completing a high caliber curriculum manual such as the ISS Mathematics Bulletin, is a herculean task that required the input and cooperation of all the teachers and supervisors in District 18.

Although the curriculum manual has been printed and distributed, the District Office continues to encourage the professional staff to offer constructive suggestions and feedback so that its content can be intelligently revised and refined; thus, we will have a document whose life blood results from the experiences and needs of the professional staff.

Because of your efforts in the ISS, the pupils of District 18 have continually shown improvement in their mathematics achievement. We are certain that this improvement in achievement and your efforts in the ISS will continue for the betterment of all involved in the education of our children.



Harvey Garner
Community Superintendent



Milton Anger
Director of Educational Development

HG:MA:ac

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Preface

This manual was written as an outgrowth of an experiment funded by Title IVC as part of a total comprehensive instructional management system. To date, curriculum guides have been developed for the following subject areas - Mathematics Grades 1-9; Consumer Education, Intermediate Grades; Metric Education, Intermediate Grades.

All these instructional guides were developed in order to meet the instructional needs of our district's educational community. In order to insure their usefulness, these guides are continuously being updated to meet the rigorous requirements of continuous teacher feedback and periodic districtwide needs assessment instruments. As you will note, this guide and its companion guides offer detailed instructional objectives accompanied by student and/or teacher oriented activities.

Acknowledgements

The ISS Mathematics Program was developed as a cooperative venture of the Community School District 18 (Jack Zimmer, President, Harvey Garner, Community Superintendent), The State Education Department, (Gerald Freeborne, Assistant Commissioner for Long Range Planning, James Sullivan, CIMS Coordinator) and Metropolitan Educational Laboratory of the Board of Education of the City of New York, (Dr. Richard Vigilante, Administrator, Wayne W. Trigg, Director).

Over the last four years, the planning, designing, researching, writing, editing, implementing and revising of the curricula were made possible through the efforts of the following people:

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INTRODUCTION

In Community School District 18, there is a diverse student population having a large range of mathematical ability. Therefore, it was necessary to create two types of modules and a "Suggested Sequence" to better meet the needs of all the students. The module types are labeled:

- "S" - Standard
- "A" - Advanced

"S" module description:

Generally, "S" modules contain Instructional Objectives which introduce and develop new concepts, and skills related to algebra and geometry. Upon mastery of these modules the student should be proficient in:

1. basic concepts and skills in Real Numbers;
2. classification of triangles and properties of quadrilaterals;
3. measurement of Area and Volume;
4. algebraic skills in evaluation, solving equations and inequalities, related word problems, and graphing.

"A" module description:

Generally, "A" modules contain Instructional Objectives which offer mathematical enrichment. Upon mastery of these modules the student should be proficient in:

1. radicals and operations with radicals;
2. congruence and similarity of triangles;
3. probability and statistics;
4. inequalities and linear equations.

Mastery of certain objectives is not tested on a computer-scored ISS test. Such objectives are indicated with an asterisk and footnote. However, teachers are urged to evaluate student mastery of these objectives in an alternative way, e.g., by using a teacher-generated test.

Activities are listed in the order of objectives to which they relate, and the related objectives are indicated by number and description at the beginning of each activity. Activities generally consist of examples and problems which lead to mastery of the specific objectives.

MODULE SEQUENCES

A module sequence is given in the chart below for this level.

Although a sequence is recommended here, this sequence is a suggestion only. Professional judgement should be exercised when following this sequence because the needs of individual students may be met better by an alternative sequence. However, module interdependencies are strong in some cases, so that teachers should inform their RP in case they have a reason to depart from the recommended sequence. The RP then can recommend special steps that may need to be taken in using an alternative sequence. In addition, teachers should inform their RP in case they use an alternative sequence because teachers' views on module sequence are important for improving the curriculum next year.

Each module in the list is described by its number, title, type (minimal, standard, advanced), and average duration. Note that the duration is included only as a rough guideline to the teacher for planning purposes. The actual time required for each module will vary widely from class to class depending on the needs of the class and the teacher's judgement. Teachers should advise their RP if a given duration seems to be in error so that it can be corrected in the future.

MODULE SEQUENCE FOR LEVEL 08

Module	Title	Days ¹
8.08.01	INTEGERS AND THE NUMBER LINE	4
8.08.02	ADDITION AND SUBTRACTION OF INTEGERS	6
8.08.03	MULTIPLICATION AND DIVISION OF INTEGERS	7
8.08.04	PROPERTIES OF INTEGERS	6
8.06.01	RATIO AND PROPORTION	6
8.06.02	VERBAL PROBLEMS INVOLVING PROPORTIONS	6
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8.09.03A	CONGRUENT AND SIMILAR TRIANGLES	12
8.06.03	ORDERING POSITIVE AND NEGATIVE FRACTIONS	6
8.06.04	COMPUTING POSITIVE AND NEGATIVE FRACTIONS	7
8.06.05A	PROPERTIES OF FRACTIONS	6
8.10.01	LINES AND ANGLES IN A PLANE	8
8.09.02	PROPERTIES OF QUADRILATERALS	3
8.10.02	AREA	12
8.10.03	VOLUME	7
8.10.04A	APPROXIMATE NATURE OF MEASUREMENT	10

¹suggested teaching duration

Module	Title	Days ¹
8.07.01	RATIONAL NUMBERS	8
8.07.02	IRRATIONAL NUMBERS	8
8.07.03A	RADICALS AND OPERATIONS WITH RADICALS	10
8.11.01	APPLYING THE ORDER OF OPERATIONS	8
8.11.02	EVALUATING AN ALGEBRAIC EXPRESSION	7
8.11.03	OPEN SENTENCES AND EQUATIONS	8
8.11.04	SOLVING AND GRAPHING INEQUALITIES BY INSPECTION	9
8.11.05	SOLVING EQUATIONS BY PROPERTIES OF EQUALITY	15
8.11.06	TRANSLATING	8
8.11.07	VERBAL PROBLEMS	5
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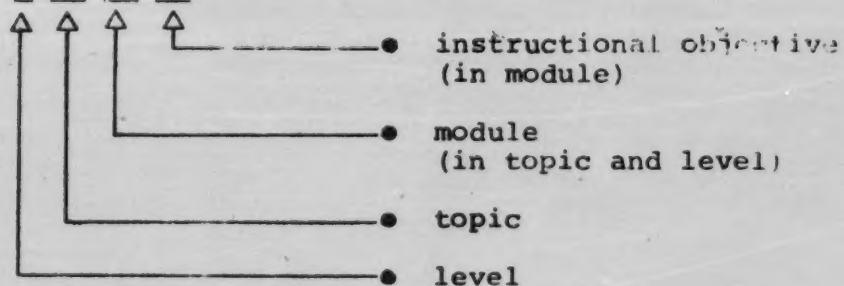
¹ suggested teaching duration

Topic Tab Key

01. Numbers and Numeration
02. Sets
03. Addition and Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving

Module Coding Key

1.02.03.04



TOPIC 6

FRACTIONS

- | | | |
|---------|---|--------------------|
| 8.06.01 | Ratio and Proportion | (standard, 6 days) |
| 8.06.02 | Verbal Problems Involving Proportions | (standard, 6 days) |
| 8.06.03 | Ordering Positive and Negative Fractions | (standard, 6 days) |
| 8.06.04 | Computing Positive and Negative Fractions | (standard, 7 days) |
| 8.06.05 | Properties of Fractions | (standard, 6 days) |

06

8.06.01

RATIO AND PROPORTION

(standard, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.06.01.01 express the comparison of two quantities given verbally and pictorially as a ratio in the form $a:b$ or $\frac{a}{b}$;
- 8.06.01.02 express the fractional part of either quantity to the total in a given ratio;
- 8.06.01.03 express a ratio in simplest form;
- 8.06.01.04 express a given ratio in simplest form when the terms of the ratio are like measures;
- 8.06.01.05 express a given rate in simplest form;
- 8.06.01.06 identify the means and extremes of a given proportion;
- 8.06.01.07 determine whether a given proportion is a true or false statement;
- 8.06.01.08 find the missing term in a given proportion.

06

8 .06 .01 .01

. . .

NAME _____

CLASS _____

DATE _____

COMPARE TWO QUANTITIES AS A RATIO

Directions:

Express as a ratio.

1

Joan has 3 red marbles and 5 blue marbles.
Express the ratio of red marbles to blue marbles.

2

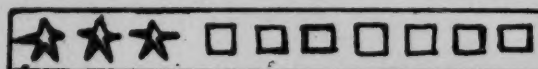
There are 15 boys and 17 girls in a class.
Express the ratio of boys to girls; girls to boys.

3

Several years ago, the Yankees won 95 games out of 162. Express as a ratio the number of games won to the number lost.

4

What is the ratio of stars to squares?



5

What is the ratio of even numbers to odd numbers in set A? $A = \{1, 2, 3, 4, 5\}$

6

What is the ratio of the number of "M"s to the number of letters in the word: MATHEMATICS?

06

Selected Answers:

8 .06 .01 .02

. . .

NAME _____

CLASS _____

DATE _____

EXPRESS THE FRACTIONAL PART OF EITHER QUANTITY
TO THE TOTAL IN A RATIO

Directions:

Express as a fraction.

- 1 In a drawer, the ratio of white shirts to blue shirts is 2:5. What fractional part of all these shirts is white?
- 2 In a movie theater, the ratio of men to women is 4:3. What fractional part of those attending is women?
- 3 In a jar containing only red and green marbles, the ratio of red marbles to green marbles is 1:3. What fractional part of all the marbles is red?
- 4 The ratio of hits to times at bat is 4:11. What fractional part of the times at bat is hits?
- 5 The ratio of boys to girls at a party is 3:4. What fractional part of those attending is girls?
- 6 On a bus the ratio of children to the total number of passengers is 2:17. What fractional part of the passengers is children?

Selected Answers:

8. 06. 01. 03

. . .

NAME _____

CLASS _____

DATE _____

EXPRESS A RATIO IN SIMPLEST FORM

Directions:

Express each ratio in simplest form.

1 2:4	2 6:9	3 8:4	4 5:6
5 $\frac{5}{20}$	6 $\frac{8}{32}$	7 $\frac{14}{21}$	8 $\frac{27}{18}$
9 24:36	10 15:45	11 17:19	12 12:10
13 $\frac{13}{39}$	14 $\frac{16}{8}$	15 $\frac{9}{20}$	16 $\frac{40}{60}$

06

Selected Answers:

8 .06 .01 .04

. . .

NAME _____

CLASS _____

DATE _____

EXPRESS A RATIO IN SIMPLEST FORM WHEN TERMS ARE LIKE MEASURES

Directions:

Express each ratio in simplest form.

1 5 feet to 7 feet	2 10 inches to 12 inches	3 1 foot to 1 inch	4 7 inches to 2 feet
5 3 yards to 6 yards	6 1 yard to 1 foot	7 3 feet to 7 yards	8 2 inches to 2 yards
9 4 ounces to 5 ounces	10 6 ounces to 3 ounces	11 1 pound to 1 ounce	12 4 pounds to 3 ounces
13 12 minutes to 18 minutes	14 1 hour to 1 minute	15 30 minutes to 2 hours	16 3 hours to 40 minutes

Selected Answers:

NAME _____

CLASS _____

DATE _____

EXPRESS A RATE IN SIMPLEST FORM

Directions:

Express each rate in simplest form.

1 80 miles in 2 hours	2 12 feet in 2 seconds	3 100 miles in 4 minutes	4 30 miles in 1 hour
5 28 beats in 2 minutes	6 64 beats in 8 seconds	7 16 notes in 2 bars	8 35 pages in 5 minutes
9 10 pounds in 2 weeks	10 15 pounds in 1 month	11 200 in 5 days	12 72 in 8 hours
13 10 in 5 minutes	14 75 cars in 5 hours	15 500 cars in 10 lots	16 90 miles in 4 hours

Selected Answers:



NAME _____

CLASS _____

DATE _____

IDENTIFY THE MEANS AND EXTREMES OF A PROPORTION

Directions:

In the following proportions which numerals represent the "means" and "extremes"?

1 $3:4 = 6:8$ MEANS: EXTREMES:	2 $10:1 = 30:3$ MEANS: EXTREMES:	3 $5:6 = 10:12$ MEANS: EXTREMES:
4 $\frac{12}{8} = \frac{3}{2}$ MEANS: EXTREMES:	5 $\frac{1}{7} = \frac{4}{28}$ MEANS: EXTREMES:	6 $\frac{6}{4} = \frac{18}{12}$ MEANS: EXTREMES:
7 $15:3 = 5:1$ MEANS: EXTREMES:	8 $\frac{11}{2} = \frac{44}{8}$ MEANS: EXTREMES:	9 $5:9 = 20:36$ MEANS: EXTREMES:

Selected Answers:



NAME _____

CLASS _____

DATE _____

DETERMINE WHETHER A PROPORTION IS TRUE OR FALSE

Directions:

Determine if each proportion is True or False.

1 $4:5 = 12:15$	2 $2:1 = 1:2$	3 $6:5 = 12:10$
4 $\frac{3}{4} = \frac{8}{6}$	5 $\frac{10}{7} = \frac{30}{21}$	6 $\frac{8}{1} = \frac{1}{8}$
7 $6:12 = 4:8$	8 $\frac{9}{6} = \frac{12}{8}$	9 $6:10 = 20:9$

06

Selected Answers:

NAME _____

CLASS _____

DATE _____

FIND THE MISSING TERM IN A PROPORTION

Directions:

Fill in the frame to make a true proportion.

1 $2:3 = 8:\square$	2 $7:4 = \square:16$	3 $\square:2 = 5:10$	4 $6:\square = 30:10$
5 $\frac{5}{6} = \frac{\square}{18}$	6 $\frac{20}{5} = \frac{60}{\square}$	7 $\frac{9}{\square} = \frac{3}{15}$	8 $\frac{\square}{14} = \frac{5}{7}$
9 $\square:6 = 5:3$	10 $100:\square = 10:7$	11 $\frac{14}{14} = \frac{15}{\square}$	12 $\frac{1}{6} = \frac{\square}{24}$
13 $\frac{50}{60} = \frac{\square}{12}$	14 $7:2 = \square:10$	15 $\frac{45}{\square} = \frac{20}{8}$	16 $80:90 = 16:\square$

Selected Answers:

8.06.02

VERBAL PROBLEMS INVOLVING PROPORTION

(standard, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.06.02.01 solve a verbal problem involving proportion and price rate;
- 8.06.02.02 solve a verbal problem involving proportion and rate, time and distance;
- 8.06.02.03 solve a verbal problem involving proportion and scale representation;
- 8.06.02.04 solve a general verbal problem involving proportion.



NAME _____

CLASS _____

DATE _____

SOLVE PROBLEMS INVOLVING PROPORTION AND PRICE RATE

Directions:

Solve each problem.

1 Oranges are selling 8 for 93¢. At this rate, how much will 24 oranges cost?

2 In a store, 3 ties cost \$5. At this rate, how many ties could you buy for \$20?

3 How many kites can you buy for \$15 if they are selling at 6 for \$9?

4 What is the cost of 14 bars of candy if they sell at 2 for 37¢?

Selected Answers:

NAME _____

CLASS _____

DATE _____

PROBLEMS INVOLVING PROPORTION AND RATE, TIME AND DISTANCE

Directions:

Solve each problem.

1 Mrs. Dodge averaged 45 miles per hour on a drive into the country. At this rate, how long did it take her to go 180 miles?

2 Mr. Ford made a trip of 440 miles. If he traveled 55 miles in 1 hour, how long did the trip take?

3 Jimmy won a bicycle race in $1\frac{1}{3}$ hours going at an average rate of 12 miles per hour. How many miles was the race?

4 A train traveled 880 miles in $5\frac{1}{2}$ hours. At this rate, how far did it go in 1 hour?

Selected Answers:

NAME _____

CLASS _____

DATE _____

PROBLEMS INVOLVING PROPORTION AND SCALE REPRESENTATION

Directions:

Solve each problem.

1

On a map each inch represents 30 miles. What is the distance between two cities if they are 5" apart on the map?

2

On a scale drawing, 2" represents 5 yards. If the width of a room is 15 yards, how many inches does this represent on the scale drawing?

3

Two towns are 480 miles apart. If 1 inch on a map represents 320 miles, how many inches apart on the map are the two towns?

4

On a blueprint scale drawing 4" represents 10 feet. How long is a room which is represented by 10 inches?

Selected Answers:

NAME _____

CLASS _____

DATE _____

GENERAL PROBLEMS INVOLVING PROPORTION

Directions:

Solve each problem.

1 The ratio of women to men in an auditorium is 5:4. If there are 40 men, how many women are there?

2 The ratio of apples to oranges is 9:2. If there are 45 apples, how many oranges are there?

3 Janet can type 3 pages in 40 minutes. At this rate, how many pages can she type in 2 hours?

4 Mrs. Page can iron 2 shirts in 15 minutes. At this rate, how long would it take to iron 9 shirts?

Selected Answers:

8.06.03 *

ORDERING POSITIVE AND NEGATIVE FRACTIONS

(standard 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.06.03.01 determine that $-\frac{a}{b}$ is equivalent to $-\frac{a}{b}$ and $\frac{a}{-b}$;
- 8.06.03.02 compare two fractions with like denominators (using $>$, $<$, $=$);
- 8.06.03.03 compare two mixed fractions with like denominators (using $>$, $<$, $=$);
- 8.06.03.04 compare two fractions with unlike denominators (using $>$, $<$, $=$);
- 8.06.03.05 compare two mixed fractions with unlike denominators (using $>$, $<$, $=$);
- 8.06.03.06 order a given set of fractions;
- 8.06.03.07 associate each member of a given set of fractions with a point on the number line.

06

NAME _____

CLASS _____

DATE _____

WRITING EQUIVALENT NEGATIVE FRACTIONS

Directions:

(1-3) For each group of fractions circle the one that is not equivalent to the others.

(4-9) Fill in the frames so that all fractions in that group are equivalent.

1	$\frac{3}{8}$ $\frac{-3}{8}$ $\frac{3}{-8}$ $-\frac{3}{8}$	2	$\frac{5}{-6}$ $\frac{-5}{-6}$ $\frac{5}{6}$ $\frac{+5}{+6}$	3	$-\frac{9}{5}$ $\frac{-9}{5}$ $\frac{9}{5}$ $\frac{9}{-5}$
4	$\frac{7}{10}$ $\frac{\square}{-10}$ $\frac{-7}{\square}$ $\frac{7}{\square}$	5	$-\frac{6}{11}$ $\frac{-6}{\square}$ $\frac{\square}{11}$ $\frac{\square}{-11}$	6	$\frac{-3}{8}$ $\frac{3}{\square}$ $-\frac{\square}{8}$ $\frac{\square}{-8}$
7	$\frac{-5}{-3}$ $\frac{5}{\square}$ $\frac{\square}{-3}$ $-\frac{5}{\square}$	8	$\frac{9}{-4}$ $\frac{-9}{\square}$ $-\frac{\square}{4}$ $\frac{\square}{-4}$	9	$\frac{5}{13}$ $\frac{-5}{\square}$ $\frac{\square}{-13}$ $\frac{5}{\square}$

Selected Answers:



8 . 06 . 03 . 02

8 . 06 . 03 . 03

NAME _____

CLASS _____

DATE _____

COMPARE FRACTIONS WITH LIKE DENOMINATORS
COMPARE MIXED FRACTIONS WITH LIKE DENOMINATORS

Directions:

(1-12) Place $<$, $>$, or $=$ in the circle to make a true statement.

(13-16) Determine the least and greatest fraction in each group.

1 $\frac{3}{7} \bigcirc \frac{4}{7}$	2 $-\frac{1}{3} \bigcirc -\frac{2}{3}$	3 $\frac{4}{5} \bigcirc -\frac{8}{5}$	4 $-\frac{4}{9} \bigcirc -\frac{5}{9}$
5 $\frac{0}{1} \bigcirc -\frac{1}{1}$	6 $-\frac{3}{8} \bigcirc \frac{1}{8}$	7 $1\frac{1}{2} \bigcirc 2\frac{1}{2}$	8 $-3\frac{1}{3} \bigcirc -4\frac{2}{3}$
9 $5\frac{1}{4} \bigcirc -6\frac{1}{4}$	10 $2\frac{1}{5} \bigcirc -2\frac{1}{5}$	11 $-8\frac{3}{5} \bigcirc -8\frac{2}{5}$	12 $-8 \bigcirc -8\frac{1}{2}$
13 $\frac{3}{7} \quad -\frac{3}{7}$ $\frac{4}{7} \quad -\frac{4}{7}$	14 $-\frac{5}{9} \quad -\frac{3}{9}$ $-\frac{1}{9} \quad \frac{4}{9}$	15 $3\frac{2}{10} \quad -2\frac{1}{10}$ $-3\frac{7}{10} \quad 2\frac{1}{10}$	16 $-5\frac{1}{6} \quad -4\frac{5}{6}$ $-6\frac{1}{6} \quad -6\frac{5}{6}$



Selected Answers:

8 . 06 . 03 . 04

8 . 06 . 03 . 05

NAME _____

CLASS _____

DATE _____

COMPARE FRACTIONS WITH UNLIKE DENOMINATORS
COMPARE MIXED FRACTIONS WITH UNLIKE DENOMINATORS

Directions:

(1-12) Place $>$, $<$, or $=$ in the circle to make a true statement.

(13-16) Determine the least and greatest fraction in each group.

1 $\frac{1}{2} \bigcirc \frac{2}{3}$	2 $-\frac{1}{2} \bigcirc -\frac{2}{3}$	3 $\frac{3}{5} \bigcirc -\frac{1}{4}$	4 $-\frac{1}{5} \bigcirc -\frac{3}{10}$
5 $-\frac{8}{9} \bigcirc \frac{1}{3}$	6 $-\frac{3}{4} \bigcirc -\frac{4}{5}$	7 $3\frac{1}{3} \bigcirc 3\frac{2}{5}$	8 $-1\frac{1}{2} \bigcirc -2\frac{2}{3}$
9 $-5\frac{1}{7} \bigcirc -4\frac{2}{3}$	10 $2\frac{3}{4} \bigcirc -1\frac{1}{2}$	11 $-7\frac{1}{4} \bigcirc -7\frac{1}{3}$	12 $4\frac{1}{3} \bigcirc -3\frac{1}{2}$
13 $\frac{3}{4} \quad \frac{2}{3}$ $-\frac{3}{4} \quad -\frac{2}{3}$	14 $-\frac{4}{5} \quad \frac{1}{2}$ $\frac{2}{3} \quad -\frac{3}{4}$	15 $2\frac{5}{8} \quad 3\frac{1}{4}$ $-2\frac{1}{4} \quad -3\frac{5}{8}$	16 $5\frac{1}{5} \quad -4\frac{1}{2}$ $5\frac{1}{4} \quad -\frac{3}{8}$



Selected Answers:

NAME _____

CLASS _____

DATE _____

ORDER A SET OF FRACTIONS FROM LEAST TO GREATEST

Directions:

Order each group of fractions from least to greatest.

1	$\left\{ \frac{3}{7}, -\frac{5}{7}, \frac{4}{7}, -\frac{2}{7} \right\}$ $\{ \quad \quad \quad \}$
2	$\left\{ -\frac{1}{3}, -\frac{3}{4}, \frac{1}{2}, \frac{3}{5} \right\}$ $\{ \quad \quad \quad \}$
3	$\left\{ \frac{3}{10}, 0, -\frac{1}{5}, -\frac{2}{3} \right\}$ $\{ \quad \quad \quad \}$
4	$\left\{ \frac{3}{4}, -1\frac{1}{2}, 0, -\frac{4}{5} \right\}$ $\{ \quad \quad \quad \}$
5	$\left\{ 2\frac{2}{3}, 3\frac{1}{4}, -2\frac{3}{4}, -3\frac{1}{4} \right\}$ $\{ \quad \quad \quad \}$
6	$\left\{ -5\frac{1}{3}, 2\frac{1}{5}, -4\frac{3}{4}, 5\frac{1}{2} \right\}$ $\{ \quad \quad \quad \}$

Selected Answers:

NAME _____

CLASS _____

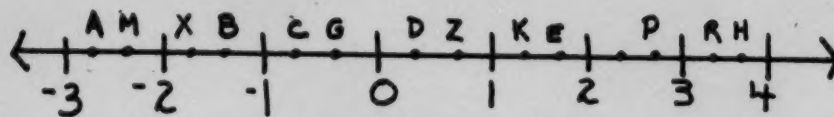
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ASSOCIATE FRACTIONS WITH POINTS ON A NUMBER LINE

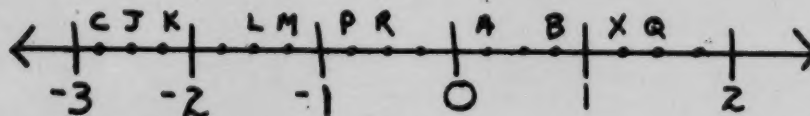
Directions:

- (1) Determine the point on the number line which corresponds to each fraction.
- (2) Determine the fraction which corresponds to each point on the number line.

1

 $1\frac{2}{3}$: pt. _____ $3\frac{2}{3}$: pt. _____ $-2\frac{1}{3}$: pt. _____ $-\frac{1}{3}$: pt. _____ $-1\frac{2}{3}$: pt. _____ $\frac{2}{3}$: pt. _____

2



Pt. M: _____

Pt. L: _____

Pt. Q: _____

Pt. B: _____

Pt. K: _____

Pt. P: _____

Selected Answers:

8.06.04

COMPUTING POSITIVE AND NEGATIVE FRACTIONS

(standard, 7 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.06.04.01 add two fractions;
- 8.06.04.02 subtract two fractions;
- 8.06.04.03 multiply two fractions;
- 8.06.04.04 raise a fraction to a power;
- 8.06.04.05 determine the reciprocal of a fraction;
- 8.06.04.06 divide two fractions.

06

NAME _____

CLASS _____

DATE _____

ADD TWO FRACTIONS

Directions:

Add.

1 $\frac{3}{4} + \frac{1}{4} =$	2 $\frac{2}{7} + -\frac{5}{7} =$	3 $\begin{array}{r} -\frac{8}{9} \\ + -\frac{4}{9} \\ \hline \end{array}$
4 $\frac{3}{5} + -\frac{1}{3} =$	5 $-\frac{5}{8} + -\frac{1}{2} =$	6 $\begin{array}{r} -\frac{2}{3} \\ + \frac{1}{8} \\ \hline \end{array}$
7 $-2\frac{1}{5} + -3\frac{1}{5} =$	8 $1\frac{3}{4} + -3\frac{1}{8} =$	9 $\begin{array}{r} 7\frac{5}{6} \\ + -2\frac{1}{10} \\ \hline \end{array}$



Selected Answers:

NAME _____

CLASS _____

DATE _____

SUBTRACT TWO FRACTIONS

Directions:

Subtract.

1 $\left(\frac{7}{8}\right) - \left(\frac{9}{8}\right) =$	2 $\left(\frac{4}{7}\right) - \left(-\frac{1}{7}\right) =$	3 $\begin{array}{r} -\frac{4}{9} \\ -\frac{1}{9} \\ \hline \end{array}$
4 $\left(\frac{2}{3}\right) - \left(-\frac{1}{4}\right) =$	5 $\left(-\frac{5}{6}\right) - \left(-\frac{1}{2}\right) =$	6 $\begin{array}{r} -\frac{7}{8} \\ -\frac{3}{5} \\ \hline \end{array}$
7 $\left(-2\frac{1}{3}\right) - \left(1\frac{1}{2}\right) =$	8 $\left(3\frac{1}{4}\right) - \left(-2\frac{3}{8}\right) =$	9 $\begin{array}{r} 3\frac{2}{3} \\ -5\frac{1}{4} \\ \hline \end{array}$

Selected Answers:



NAME _____

CLASS _____

DATE _____

MULTIPLY TWO FRACTIONS

Directions:

Multiply.

1 $(\frac{2}{3})(\frac{1}{2}) =$	2 $(-\frac{2}{3})(\frac{1}{2}) =$	3 $(-\frac{5}{8})(-\frac{4}{5}) =$
4 $(-6)(\frac{3}{4}) =$	5 $(-2\frac{1}{2})(-3) =$	6 $(0)(-\frac{2}{5}) =$
7 $(1\frac{1}{2})(-2\frac{3}{4}) =$	8 $(-9)(-\frac{2}{3}) =$	9 $(4\frac{3}{8})(0) =$

Selected Answers:

NAME _____

CLASS _____

DATE _____

RAISE A FRACTION TO A POWER

Directions:

Write as a standard numeral.

1 $(\frac{1}{2})^2 = \square$	2 $(-\frac{3}{4})^2 = \square$	3 $(-1)^3 = \square$
4 $(3\frac{1}{3})^2 = \square$	5 $(-\frac{2}{3})^3 = \square$	6 $(-1\frac{1}{4})^3 = \square$
7 $(-\frac{1}{3})^4 = \square$	8 $(-2\frac{1}{3})^2 = \square$	9 $(-\frac{1}{2})^5 = \square$

06

Selected Answers:

NAME _____

CLASS _____

DATE _____

DETERMINE THE RECIPROCAL OF A FRACTION

Directions:

Find the reciprocal.

1 $\frac{4}{5}$	2 $-\frac{9}{17}$	3 $-\frac{11}{3}$
4 $2\frac{1}{5}$	5 $-3\frac{3}{8}$	6 -7
7 $\frac{4}{-3}$	8 $\frac{-10}{19}$	9 8

06

Selected Answers:

NAME _____

CLASS _____

DATE _____

DIVIDE TWO FRACTIONS

Directions:

Divide.

1 $\left(\frac{3}{4}\right) \div \left(-\frac{1}{2}\right) =$	2 $(-8) \div \left(-\frac{2}{3}\right) =$	3 $(0) \div \left(-\frac{1}{2}\right) =$
4 $\left(-\frac{3}{5}\right) \div (6) =$	5 $\left(1\frac{1}{2}\right) \div (-3) =$	6 $\left(-5\frac{1}{4}\right) \div \left(-\frac{1}{2}\right) =$
7 $\left(-4\frac{1}{4}\right) \div \left(-\frac{1}{3}\right) =$	8 $\left(7\frac{1}{2}\right) \div \left(-3\frac{3}{4}\right) =$	9 $(-2) \div \left(-2\frac{1}{2}\right) =$

06

Selected Answers:

8.06.05

PROPERTIES OF FRACTIONS

(advanced, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.06.05.01 recognize the Commutative and Associative Properties of Addition for fractions;
- 8.06.05.02 recognize the Commutative and Associative Properties of Multiplication for fractions;
- 8.06.05.03 recognize that there is no Commutative and Associative Properties of Subtraction and Division for fractions;
- 8.06.05.04 recognize the Additive Identity Property and the Additive Identity Element for fractions,
- 8.06.05.05 recognize the Additive Inverse Property and the Additive Inverse of a fraction;
- 8.06.05.06 recognize the Multiplicative Identity Property and the Multiplicative Identity Element;
- 8.06.05.07 recognize the Multiplicative Inverse Property and the Multiplicative Inverse of a fraction;
- 8.06.05.08 recognize the Distributive Property of Multiplication over Addition and Subtraction for fractions.

06

TOPIC 7

DECIMALS

- | | | |
|---------|--|---------------------|
| 8.07.01 | Rational Numbers | (standard, 8 days) |
| 8.07.02 | Irrational Numbers | (standard, 8 days) |
| 8.07.03 | Radicals and Operations With
Radicals | (advanced, 10 days) |

07

8.07.01

RATIONAL NUMBERS

(standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.07.01.01 know that a rational number is any number which may be written in the form $\frac{a}{b}$ where a and $b \in \text{Integers}$ and $b \neq 0$;
- 8.07.01.02 express a given fraction as a terminating decimal numeral;
- 8.07.01.03 express a given fraction as an infinite repeating decimal numeral (using bar notation) by dividing the numerator by the denominator;
- 8.07.01.04 express a given terminating decimal in the form $\frac{a}{b}$;
- 8.07.01.05 express a given repeating decimal in the form $\frac{a}{b}$;
- 8.07.01.06 determine the square roots of whole number perfect squares ≤ 100 , and identify the symbol " $\sqrt{\quad}$ " for a principal square root;
- 8.07.01.07 determine the principal square root of whole number perfect squares > 100 ;



continued...

NAME _____

CLASS _____

DATE _____

EXPRESS A GIVEN FRACTION AS A TERMINATING DECIMAL

Directions:

Write the following as terminating decimals.

1 $\frac{1}{4} =$	2 $\frac{4}{5} =$	3 $\frac{3}{8} =$
4 $\frac{7}{10} =$	5 $\frac{3}{16} =$	6 $\frac{7}{20} =$
7 $\frac{3}{12} =$	8 $\frac{4}{20} =$	9 $\frac{1}{56} =$

07

Selected Answers:

8 . 07 . 01 . 03

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NAME

CLASS

DATE

EXPRESS FRACTIONS AS INFINITE REPEATING DECIMAL NUMERALS

Directions:

Write the following as infinite repeating decimals. .

1 $\frac{1}{3} =$	2 $\frac{1}{9} =$	3 $\frac{1}{11} =$
4 $\frac{5}{9} =$	5 $\frac{7}{11} =$	6 $\frac{1}{6} =$
7 $\frac{4}{6} =$	8 $\frac{5}{12} =$	9 $\frac{20}{90} =$

07

Selected Answers:

8 . 07 . 01 . 04

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NAME _____

CLASS _____

DATE _____

EXPRESS TERMINATING DECIMALS AS FRACTIONS

Directions:

Write the following as fractions.

1 $.37 =$	2 $.9 =$	3 $.07 =$
4 $.013 =$	5 $.063 =$	6 $.001 =$
7 $.62 =$	8 $3.7 =$	9 $6.15 =$

07

Selected Answers:

NAME _____

CLASS _____

DATE _____

EXPRESS REPEATING DECIMALS AS FRACTIONS

Directions:

Write the following as fractions.

1 $.6\overline{6} =$	2 $.7\overline{7} =$	3 $.27\overline{27} =$
4 $.54\overline{54} =$	5 $.09\overline{09} =$	6 $.76\overline{76} =$
7 $.321\overline{321} =$	8 $.849\overline{849} =$	9 $.1\overline{6} =$

07

Selected Answers:

NAME _____

CLASS _____

DATE _____

DETERMINE THE SQUARE ROOTS OF PERFECT SQUARES AND THE SYMBOL

Directions:

Answer the following:

1 A square root of 36 is ____.	2 A square root of 4 is ____.	3 A square root of 81 is ____.
4 The principal square root of 9 is ____.	5 The principal square root of 25 is ____.	6 The principal square root of 49 is ____.
7 $\sqrt{16} =$	8 $\sqrt{100} =$	9 $\sqrt{64} =$

07

NAME _____

CLASS _____

DATE _____

DETERMINE THE RATIONAL PRINCIPAL SQUARE ROOTS OF NUMBERS

Directions:

Find the principal square root.

1 $\sqrt{121} =$	2 $\sqrt{225} =$	3 $\sqrt{324} =$	4 $\sqrt{625} =$
5 $\sqrt{784}$	6 $\sqrt{961}$	7 $\sqrt{2500}$	8 $\sqrt{8100}$
9 $\sqrt{1225}$	10 $\sqrt{2209}$	11 $\sqrt{3969}$	12 $\sqrt{5184}$
13 $\sqrt{7921}$	14 $\sqrt{3600}$	15 $\sqrt{484}$	16 $\sqrt{9025}$

07

8.07.01

8.07.01.08 determine the principal square
root of fraction and decimal perfect squares;

8.07.01.09 compute the sum, difference, product and
quotient of positive and negative decimal
numerals.

07

NAME _____

CLASS _____

DATE _____

DETERMINE PRINCIPAL SQUARE ROOTS OF FRACTION AND DECIMAL SQUARES

Directions:

Find the principal square root.

1 $\sqrt{\frac{1}{4}} =$	2 $\sqrt{\frac{1}{49}} =$	3 $\sqrt{\frac{9}{16}} =$
4 $\sqrt{\frac{25}{81}} =$	5 $\sqrt{\frac{49}{144}} =$	6 $\sqrt{.09} =$
7 $\sqrt{.36} =$	8 $\sqrt{.0064} =$	9 $\sqrt{.0016} =$

07

Selected Answers:

NAME _____

CLASS _____

DATE _____

DO THE FOUR OPERATIONS WITH POSITIVE AND NEGATIVE DECIMALS

Directions:

Add, subtract, multiply or divide.

1 $\begin{array}{r} -6.2 \\ + 4.3 \\ \hline \end{array}$	2 $11.9 + -3.4 =$	3 $-8.7 + 7.1 =$	4 $-5.2 + -1.8 =$
5 $\begin{array}{r} -2.1 \\ - -4.6 \\ \hline \end{array}$	6 $8.2 - -9.5 =$	7 $-5.9 + 6.7 =$	8 $-11.4 - -15.2 =$
9 $\begin{array}{r} 3.6 \\ \times -1.4 \\ \hline \end{array}$	10 $-0.7 \times .9 =$	11 $(-8.4)(-4.7) =$	12 $(22.5)(-8.01) =$
13 $-3 \overline{)8.1}$	14 $-12.16 \div 4 =$	15 $-3.45 \div -23 =$	16 $\begin{array}{r} 0.102 \\ \underline{2.3} \end{array}$

07

8.07.02

IRRATIONAL NUMBERS

(standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- *8.07.02.01 know that an irrational number is any number which cannot be written in the form $\frac{a}{b}$ where a and b $\in$ Integers, $b \neq 0$;
- 8.07.02.02 recognize a non-terminating, non-repeating decimal as an irrational number;
- 8.07.02.03 distinguish between rational and irrational numbers;
- *8.07.02.04 know that the set of real numbers is the union of rational and irrational numbers;
- 8.07.02.05 approximate to the nearest tenth the square root of non-perfect squares.
- 8.07.02.06 know that the pythagorean relationship is $a^2 + b^2 = c^2$; (a,b the legs of a right triangle and c the hypotenuse).
- 8.07.02.07 determine if three given measurements can be the lengths of the sides of a right triangle;
- 8.07.02.08 determine the length of a side of a right triangle given the rational lengths of the other two sides.

*This I.O. is not tested on an I.S.S. Test.

8 . 07 . 02 . 02

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NAME _____

CLASS _____

DATE _____

LABEL A NON-TERMINATING, NON-REPEATING DECIMAL AS IRRATIONAL

Directions:

Place and "I" next to the irrational numbers.

1 $.7$	2 $.64713\dots$	3 $.123\overline{123}$
4 $.1785\dots$	5 $.07\overline{07}$	6 $.\overline{6}$
7 $.489$	8 $.759\overline{759}$	9 $5.63201\dots$

07

Selected Answers:

NAME _____

CLASS _____

DATE _____

DISTINGUISH BETWEEN RATIONAL AND IRRATIONAL NUMBERS**Directions:**

Place an "R" next to the rational numbers and an "I" next to the irrational numbers.

1 $\frac{3}{7}$	2 5	3 $\sqrt{3}$
4 $\sqrt{25}$	5 $\sqrt[3]{13}$	6 .0015
7 .0836...	8 $3\frac{1}{4}$	9 $\sqrt{43}$

07

Selected Answers:

8. 07. 02. 05

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NAME _____

CLASS _____

DATE _____

FIND TO THE NEAREST TENTH THE SQUARE ROOT OF NON-PERFECT SQUARES

Directions:

Find the square root to the nearest tenth.

1 $\sqrt{3} \approx$	2 $\sqrt{8} \approx$	3 $\sqrt{13} \approx$
4 $\sqrt{22} \approx$	5 $\sqrt{35} \approx$	6 $\sqrt{50} \approx$
7 $\sqrt{12} \approx$	8 $\sqrt{85} \approx$	9 $\sqrt{108} \approx$

07

Selected Answers:

8 .07 .02 .07

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NAME _____

CLASS _____

DATE _____

KNOW THE SIZE RELATIONSHIPS OF THE SIDES OF A RIGHT TRIANGLE

Directions:

Circle the sets of measurements which are lengths of the sides of a right triangle.

1 4 in, 8 in, 10 in	2 3 in, 4 in, 5 in	3 1 ft, 3 ft, 5 ft.
4 5 cm, 12 cm, 13 cm	5 8 ft., 15 ft, 17 ft	6 11 yds, 13 yds, 15 yds
7 9 m, 12 m, 15 m	8 60 yds, 70 yds, 90 yds	9 5 mm, 11 mm, 13 mm

07

Selected Answers:

NAME _____

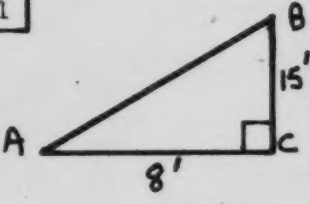
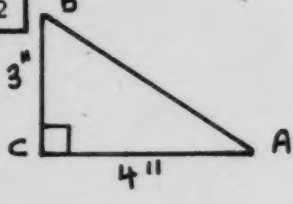
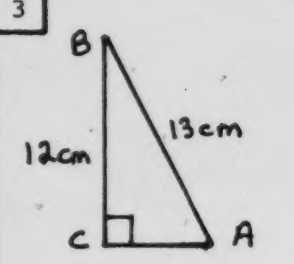
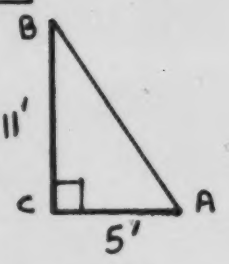
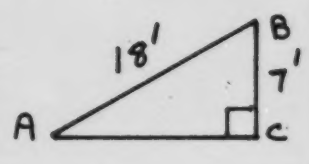
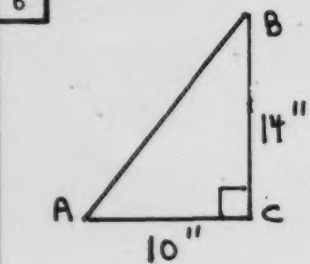
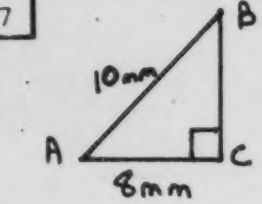
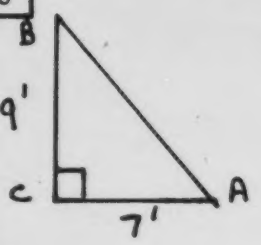
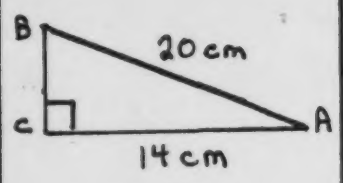
CLASS _____

DATE _____

GIVEN TWO SIDES OF A RIGHT TRIANGLE FIND THE THIRD SIDE

Directions:

Find the third side of each right triangle.

1 	2 	3 
4 	5 	6 
7 	8 	9 

07

NAME _____

CLASS _____

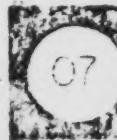
DATE _____

SOLVE VERBAL PROBLEMS INVOLVING PYTHAGOREAN RELATIONSHIPS

Directions:

Solve each word problem.

- 1 A rectangular lawn is 50 feet by 120 feet. How far would you have to walk if you cut across from corner to corner?
- 2 A wire 35 feet long stretches from the top of a pole to a stake in the ground which is 14 feet from the bottom of the pole. How long is the pole to the nearest whole foot?
- 3 Jose traveled 21 miles west and 28 miles south. How far was he from his starting point?
- 4 An inclined ramp 17 feet long reaches the edge of an 8 foot high loading platform. How far along the pavement is the foundation of the loading platform to the foot of the inclined ramp to the nearest whole foot?
- 5 Captain Williamson attached a rope to the top of a 27 foot mast on his sloop to the deck 15 feet from the foot of the mast. How long is the rope to the nearest whole foot?
- 6 A ladder 26 feet long leans against a building and reaches a ledge of a window. If the ledge of the window is 22 feet above the ground how many feet from the foundation of the building is the foot of ladder to the nearest whole foot?



8.07.03

RADICALS AND OPERATIONS WITH RADICALS

(advanced, 10 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

8.07.03.01 approximate to the nearest hundredth
the square root of a non-perfect square.

8.07.03.02 know $\sqrt{ab} = (\sqrt{a})(\sqrt{b})$ where
 $a, b \geq 0$;

8.07.03.03 know $(\sqrt{a})^2 = a$ and $\sqrt{a^2} = a$
where $a \geq 0$;

8.07.03.04 express a radical in simplest form;

8.07.03.05 add or subtract radicals.

8.07.03.06 determine the third side of a right
triangle given two sides where at
least one side is irrational.

07

TOPIC 8

INTEGERS

- 8.08.01 Integers and the Number Line (standard, 4 days)
- 8.08.02 Addition and Subtraction of
 Integers (standard, 6 days)
- 8.08.03 Multiplication and Division of
 Integers (standard, 7 days)
- 8.08.04 Properties of Integers (standard, 6 days)

08

8.08.01

INTEGERS AND THE NUMBER LINE

(standard, 4 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.08.01.01 realize the need for the set of negative integers when subtracting whole numbers;
- 8.08.01.02 identify positive and negative integers as they relate to familiar situations;
- 8.08.01.03 associate positive and negative integers with points on a number line;
- 8.08.01.04 identify the opposite of a given integer (with the aid of the number line);
- 8.08.01.05 determine the opposite of a given integer;
- 8.08.01.06 order the set of integers (using $>$, $<$, $=$, $\geq$, and $\leq$).

08

8 .08 .01 .01

. . .

NAME _____

CLASS _____

DATE _____

REALIZE THE NEED FOR THE SET OF NEGATIVE INTEGERS

Directions:

(1-6) Determine which examples below have a whole number answer. Explain.

(7-9) What whole numbers may replace the frame so that the answer is a whole number?

1 $8 - 3 =$ WHY:	2 $0 + 9 =$ WHY:	3 $5 - 7 =$ WHY:
4 $0 - 4 =$ WHY:	5 $10 - 7 =$ WHY:	6 $3 + 11 =$ WHY:
7 $5 - \square = \text{Whole number}$	8 $\square - 9 = \text{Whole number}$	9 $3 + \square = \text{Whole number}$

08

Selected Answers:

NAME _____

CLASS _____

DATE _____

IDENTIFY POSITIVE AND NEGATIVE INTEGERS IN COMMON SITUATIONS

Directions:

- (1-6) Represent each situation as an integer.
 (7-12) Describe a situation which may be represented by the given integer.

1	a loss of 5 pounds	7	+18
2	39° above zero	8	-4
3	200 feet below sea level	9	-500
4	An increase of \$8	10	+197
5	a gain of 7 miles	11	0
6	a withdrawal of \$350	12	-1

08

Selected Answers:

8. 08. 01. 03

NAME _____

CLASS _____

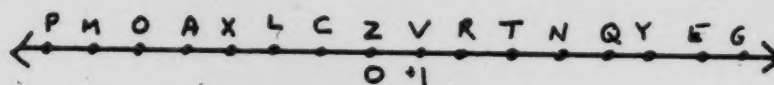
DATE _____

PLACE POSITIVE AND NEGATIVE INTEGERS ON A NUMBER LINE

Directions:

- (1) Determine the point on the number line which corresponds to each integer.
- (2) Determine the integer which corresponds to each point on the number line.

1



+ 8: pt. _____

+ 2: pt. _____

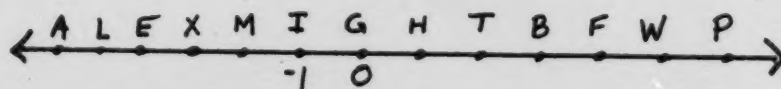
- 7: pt. _____

- 1: pt. _____

- 3: pt. _____

+ 5: pt. _____

2



pt. B: _____

pt. H: _____

pt. A: _____

pt. W: _____

pt. X: _____

pt. M: _____

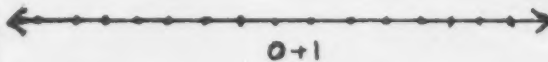
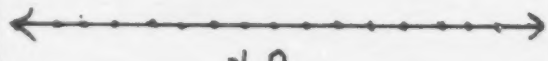
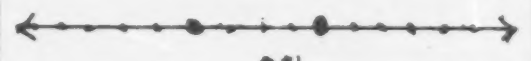
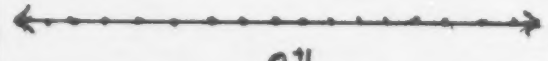
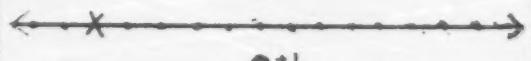
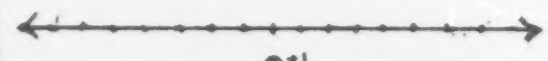
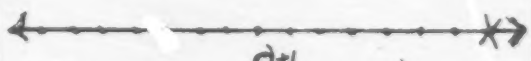
Selected Answers:

Name _____

Class _____

Date _____

IDENTIFY THE OPPOSITE OF A GIVEN INTEGER USING A NUMBER LINE

1 Place an "x" on the number line indicating the <u>opposite</u> of 6.  0+1	5 Which number and its opposite are indicated by the darkened circles?  0+1
2 Place an "x" on the number line indicating the <u>opposite</u> of 2.  -1 0	6 Which number and its opposite are indicated by the darkened circles?  0+1
3 Place an "x" on the number line indicating the <u>opposite</u> of -3 ?  0+1	7 Indicate by a darkened circle the opposite of the integer which has been marked by an "x" on the number line.  0+1
4 Place an "x" on the number line indicating the <u>opposite</u> of -5 .  0+1	8 Indicate by a darkened circle the opposite of the integer which has been marked by an "x" on the number line.  0+1

8. 08. 01. 05

NAME

CLASS

DATE

DETERMINE THE OPPOSITE OF A GIVEN INTEGER

Directions:

Write the opposite.

1	+ 7	11	- 9
2	- 1	12	+ 37
3	+ 13	13	- 89
4	1	14	- 63
5	27	15	4
6	0	16	- 2
7	- 68	17	6
8	3	18	- 57
9	- 3	19	+ 287
10	8	20	- 38

08

8 . 08 . 01 . 06

. . .

NAME _____

CLASS _____

DATE _____

ORDER THE SET OF INTEGERS

Directions:

(1-8) Place $>$, $<$, or $=$ in the circle to make a true statement.

(9-12) Determine whether the statement is true or false.

1 $+8 \bigcirc +10$	2 $-8 \bigcirc -10$	3 $+8 \bigcirc -10$	4 $0 \bigcirc -3$
5 $-13 \bigcirc +14$	6 $+2 \bigcirc -7$	7 $-4 \bigcirc -4$	8 $+9 \bigcirc 0$
9 $-2 < +1$	10 $0 \geq -1$	11 $+7 \leq -8$	12 $-9 > -10$
13 $-3 \geq -3$	14 $+8 \leq +8$	15 $-8 \leq +1$	16 $-23 > +22$

08

Selected Answers:

8.08.02

ADDITION AND SUBTRACTION OF INTEGERS

(standard, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- | | |
|------------|---|
| 8.08.02.01 | recognize that a counting number is a positive integer; |
| 8.08.02.02 | add positive and negative integers on the number line; |
| 8.08.02.03 | determine the absolute value of a given integer; |
| 8.08.02.04 | compute the sum of two integers with like signs; |
| 8.08.02.05 | compute the sum of two integers with unlike signs; |
| 8.08.02.06 | compute the sum of two integers one of which is zero; |
| 8.08.02.07 | compute the sum of three or more integers; |
| 8.09.02.08 | subtract two positive integers by adding the opposite of the subtrahend; |
| 8.08.02.09 | subtract a negative integer from a positive integer by adding the opposite of the subtrahend; |



continued ...

NAME _____

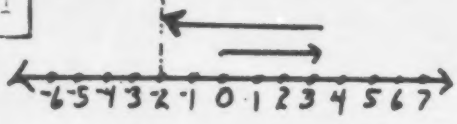
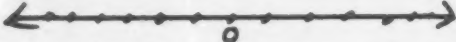
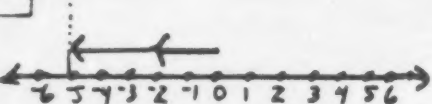
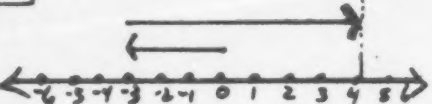
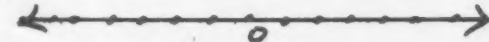
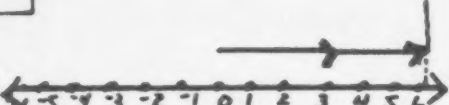
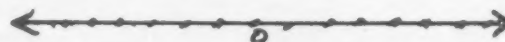
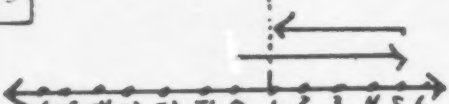
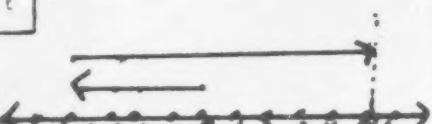
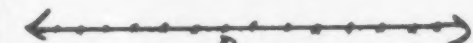
CLASS _____

DATE _____

ADD POSITIVE AND NEGATIVE INTEGERS ON THE NUMBER LINE

Directions:

(1-6) Determine what integers are being added on the number line.
 (7-12) Add on the number line.

1 	7 $-3 + 8$ 
2 	8 $4 + 1$ 
3 	9 $-2 + -2$ 
4 	10 $6 + -3$ 
5 	11 $2 + -7$ 
6 	12 $-3 + 0$ 

Delimited Answers:



Name _____

Class _____

Date _____

DETERMINE THE ABSOLUTE VALUE OF A GIVEN INTEGER

1	$ -4 $	11	$ -16 $
2	$ 5 $	12	$ +16 $
3	$ -9 $	13	Which two integers have an absolute value of 7 ?
4	$ -2 $	14	Which two integers have an absolute value of 1 ?
5	$ 17 $	15	Which integer(s) have an absolute value of 0 ?
6	$ -23 $	16	Which integer(s) have an absolute of -3 ?
7	$ 0 $	17	Which integer(s) have an absolute value of -9 ?
8	$ -1 $	18	Which two integers have an absolute value of 28?
9	$ 10 $	19	Which two integers have an absolute value of 10 ?
10	$ -12 $	20	Which two integers have an absolute value of 9 ?

8. 08 .02 .04

8. 08 .02 .05

8. 08 .02 .06

NAME _____

CLASS _____

DATE _____

COMPUTE THE SUM OF TWO INTEGERS WITH LIKE SIGNS
 COMPUTE THE SUM OF TWO INTEGERS WITH UNLIKE SIGNS
 COMPUTE THE SUM OF TWO INTEGERS ONE OF WHICH IS ZERO

Directions:

Add.

1 $-8 + -3 =$	2 $6 + 5 =$	3 $-8 + -11 =$	4 $0 + 14 =$
5 -9 $+ -15$ _____	6 11 $+ 21$ _____	7 -6 $+ 0$ _____	8 -15 $+ -18$ _____
9 $7 + -4 =$	10 $-3 + 14 =$	11 $-34 + 0 =$	12 $13 + -4 =$
13 -40 $+ 13$ _____	14 17 $+ -9$ _____	15 38 $+ -45$ _____	16 -28 $+ 50$ _____

08

Selected Answers:

NAME _____

CLASS _____

DATE _____

COMPUTE THE SUM OF THREE OR MORE INTEGERS

Directions:

Add.

1 $3 + -2 + 8 =$	2 $6 + 10 + -4 =$	3 $-9 + 1 + -6 =$	4 $-13 + -4 + 2 =$
5 $\begin{array}{r} 7 \\ -9 \\ + 10 \\ \hline \end{array}$	6 $\begin{array}{r} -2 \\ 4 \\ + 6 \\ \hline \end{array}$	7 $\begin{array}{r} 15 \\ -8 \\ + -12 \\ \hline \end{array}$	8 $\begin{array}{r} -3 \\ 0 \\ + 1 \\ \hline \end{array}$
9 $-6 + 1 + 3 + -5 =$	10 $8 + -2 + 1 + -9 =$	11 $5 + 0 + -10 + -1 =$	12 $1 + -7 + -6 + -5 =$
13 $\begin{array}{r} 18 \\ -4 \\ -11 \\ + -6 \\ \hline \end{array}$	14 $\begin{array}{r} -3 \\ 5 \\ -7 \\ + 6 \\ \hline \end{array}$	15 $\begin{array}{r} -4 \\ 3 \\ 0 \\ + -2 \\ \hline \end{array}$	16 $\begin{array}{r} 7 \\ -10 \\ 4 \\ + 5 \\ \hline \end{array}$

Selected Answers:



8 . 08 . 02 . 08

8 . 08 . 02 . 09

NAME _____

CLASS _____

DATE _____

SUBTRACT A POSITIVE INTEGER FROM A POSITIVE INTEGER
SUBTRACT A NEGATIVE INTEGER FROM A POSITIVE INTEGER

Directions:

Subtract.

1 $8 - 5 =$	2 $9 - 13 =$	3 $7 - 7 =$	4 $6 - 10 =$
5 $\begin{array}{r} 14 \\ - 10 \\ \hline \end{array}$	6 $\begin{array}{r} 18 \\ - 27 \\ \hline \end{array}$	7 $\begin{array}{r} 9 \\ - 12 \\ \hline \end{array}$	8 $\begin{array}{r} 15 \\ - 6 \\ \hline \end{array}$
9 $4 - -6 =$	10 $8 - -2 =$	11 $16 - -1 =$	12 $34 - -35 =$
13 $\begin{array}{r} 10 \\ - -7 \\ \hline \end{array}$	14 $\begin{array}{r} 6 \\ - -9 \\ \hline \end{array}$	15 $\begin{array}{r} 58 \\ - -13 \\ \hline \end{array}$	16 $\begin{array}{r} 6 \\ - -17 \\ \hline \end{array}$



Selected Answers:

8.08.02

- 8.08.02.10 subtract a positive integer from a negative integer by adding the opposite of the subtrahend;
- 8.08.02.11 subtract a negative integer from a negative integer by adding the opposite of the subtrahend;
- 8.08.02.12 determine the sum or difference of two integers involving absolute values.

8 . 08 . 02 . 10

8 . 08 . 02 . 11

NAME _____

CLASS _____

DATE _____

SUBTRACT A POSITIVE INTEGER FROM A NEGATIVE INTEGER
 SUBTRACT A NEGATIVE INTEGER FROM A NEGATIVE INTEGER

Directions:

Subtract.

1 $-6 - 5 =$	2 $-3 - 1 =$	3 $-14 - 10 =$	4 $-19 - 19 =$
5 $\begin{array}{r} -11 \\ - 4 \\ \hline \end{array}$	6 $\begin{array}{r} -17 \\ - 10 \\ \hline \end{array}$	7 $\begin{array}{r} -7 \\ - 8 \\ \hline \end{array}$	8 $\begin{array}{r} -53 \\ - 1 \\ \hline \end{array}$
9 $-2 - -1 =$	10 $-13 - -4 =$	11 $-9 - -8 =$	12 $-5 - -5 =$
13 $\begin{array}{r} -17 \\ - -10 \\ \hline \end{array}$	14 $\begin{array}{r} -14 \\ - -14 \\ \hline \end{array}$	15 $\begin{array}{r} -6 \\ - -10 \\ \hline \end{array}$	16 $\begin{array}{r} -3 \\ - -13 \\ \hline \end{array}$

Selected Answers:



NAME _____

CLASS _____

DATE _____

COMBINE TWO INTEGERS INVOLVING ABSOLUTE VALUE

Directions:

Fill in the frame.

1 $ 8 + 5 = \square$	2 $ -2 + 7 = \square$	3 $ 3 + -9 = \square$	4 $ -6 + -1 = \square$
5 $ 7 - 9 = \square$	6 $ 10 - -3 = \square$	7 $ -4 - 8 = \square$	8 $ -1 - -13 = \square$
9 $ 8 + 2 = \square$	10 $ 7 + 11 = \square$	11 $ -6 + 10 = \square$	12 $ -3 + -4 = \square$
13 $ 7 - 18 = \square$	14 $ 9 - 12 = \square$	15 $ -5 - 3 = \square$	16 $ -3 - 8 = \square$



Selected Answers:

-15b-

8.08.03

MULTIPLICATION AND DIVISION OF INTEGERS

(standard, 7 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.08.03.01 recognize that the product of integers may be written using a dot or parentheses (e.g. $4 \cdot 3$, $(8)(-2)(7)$, $-6(1)$);
- 8.08.03.02 compute the product of two integers having like signs;
- 8.08.03.03 compute the product of two integers having unlike signs;
- 8.08.03.04 compute the product of three or more integers;
- 8.08.03.05 compute the quotient of two integers having like signs;
- 8.08.03.06 compute the quotient of two integers having unlike signs;
- 8.08.03.07 raise an integer to a given power;
- 8.08.03.08 determine the product and quotient of integers involving absolute value.

08

8 .08 .03 .02

8 .08 .03 .03

NAME _____

CLASS _____

DATE _____

COMPUTE THE PRODUCT OF TWO INTEGERS HAVING LIKE SIGNS
COMPUTE THE PRODUCT OF TWO INTEGERS HAVING UNLIKE SIGNS

Directions:

Multiply.

1 $5 \cdot 9 =$	2 $(-2)(-8) =$	3 $(16)(0) =$	4 $-4 \cdot -7 =$
5 $3(14) =$	6 $-6(-8) =$	7 $(-11)(-11) =$	8 $2(13) =$
9 $-8 \cdot 6 =$	10 $3 \cdot -11 =$	11 $(-4)(0) =$	12 $(5)(-7) =$
13 $14(-8) =$	14 $(-1)(-17) =$	15 $42 \cdot -6 =$	16 $-13 \cdot 5 =$



Selected Answers:

NAME _____

CLASS _____

DATE _____

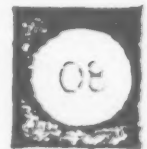
COMPUTE THE PRODUCT OF THREE OR MORE INTEGERS

Directions:

(1-6) Multiply.

(7-9) Fill in the frame to make a true statement.

1 $-5 \cdot 8 \cdot -2 =$	2 $6 \cdot -1 \cdot 8 =$	3 $-3 \cdot -3 \cdot 2 \cdot -2 =$
4 $(-3)(4)(5) =$	5 $(13)(-1)(-1) =$	6 $(-5)(-5)(-5)(-5) =$
7 $3 \cdot \square \cdot 3 = -45$	8 $\square \cdot -2 \cdot -4 = 16$	9 $-5 \cdot 3 \cdot \square = -60$



Selected Answers:

8 .08 .03 .05

8 .08 .03 .06

NAME _____

CLASS _____

DATE _____

COMPUTE THE QUOTIENT OF TWO INTEGERS HAVING LIKE SIGNS
 COMPUTE THE QUOTIENT OF TWO INTEGERS HAVING UNLIKE SIGNS

Directions:

Divide.

1 $-10 \div -5 =$	2 $24 \div 6 =$	3 $\frac{-30}{-6} =$	4 $\frac{100}{4} =$
5 $-3 \overline{) -45}$	6 $6 \overline{) 48}$	7 $-90 \div -9 =$	8 $\frac{-56}{-8} =$
9 $40 \div -8 =$	10 $-36 \div 9 =$	11 $\frac{121}{-11} =$	12 $\frac{-7}{7} =$
13 $\frac{0}{-3} =$	14 $-8 \overline{) 72}$	15 $4 \overline{) -64}$	16 $-20 \div 5 =$



8 . 08 . 03 . 07

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NAME _____

CLASS _____

DATE _____

RAISE AN INTEGER TO A GIVEN POWER

Directions:

Fill in the frame.

1 $3^2 = \square$	2 $(-2)^3 = \square$	3 $(-5)^2 = \square$
4 $(10)^3 = \square$	5 $(-11)^2 = \square$	6 $1^5 = \square$
7 $(-3)^4 = \square$	8 $(-1)^6 = \square$	9 $(0)^3 = \square$



Selected Answers:

-16d-

NAME _____

CLASS _____

DATE _____

MULTIPLY AND DIVIDE INTEGERS INVOLVING ABSOLUTE VALUE

Directions:

Fill in the frame.

1 $\frac{ 5 }{ -5 } = \square$	2 $ -3 \cdot -4 = \square$	3 $ 2 \cdot -9 = \square$
4 $ -4 \cdot 8 = \square$	5 $\left \frac{-50}{-10} \right = \square$	6 $\left \frac{32}{-8} \right = \square$
7 $-6 -3 = \square$	8 $\frac{-8}{ 5 } = \square$	9 $\frac{ -16 }{-4} = \square$



Selected Answers:

8.08.04

PROPERTIES OF INTEGERS

(standard, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- | | |
|------------|--|
| 8.08.04.01 | recognize the Commutative Property for Addition of Integers; |
| 8.08.04.02 | recognize the Associative Property for Addition of Integers; |
| 8.08.04.03 | recognize the commutative Property for Multiplication of Integers; |
| 8.08.04.04 | recognize the Associative Property for Multiplication of Integers; |
| 8.08.04.05 | recognize that there is no Commutative and Associative Properties for Subtraction and Division of Integers; |
| 8.08.04.06 | recognize the Additive Identity Element and the Additive Identity Property for Integers; |
| 8.08.04.07 | recognize the Additive Inverse element and the Additive Inverse Property; |
| 8.08.04.08 | recognize the Multiplicative Identity Element and the Multiplicative Identity Property for Integers; |
| 8.08.04.09 | recognize the Distributive Property for Multiplication over Addition and Multiplication over Subtraction for Integers. |

08

8 .08 .04 .01

thru

8 .08 .04 .09

NAME _____

CLASS _____

DATE _____

SUMMARY ACTIVITY FOR 8.08.04
PROPERTIES OF INTEGERS

Directions:

Name the property being illustrated.

If it is not an illustration of a property write "No Property".

1 $-8 + (3 + 5) = (-8 + 3) + 5$	7 $-7 \cdot 12 = 12 \cdot -7$
2 $-6 + 6 = 0$	8 $-23 + 0 = -23$
3 $-5 - 4 = 4 - -5$	9 $4 \cdot (-2 \cdot -7) = (4 \cdot -2) \cdot -7$
4 $-2 \cdot (7 + 4) = (-2 \cdot 7) + (-2 \cdot 4)$	10 $-6 + 13 = 13 + -6$
5 $-17 \cdot 1 = -17$	11 $(-6 \cdot 3) + (4 \cdot 3) = (-6 + 4) \cdot 3$
6 $(16 \div 4) \div -2 = 16 \div (4 \div -2)$	12 $3 - (5 - 7) = (3 - 5) - 7$

08

Selected Answers:

NAME _____

CLASS _____

DATE _____

SUMMARY ACTIVITY FOR 8.08.04
PROPERTIES OF INTEGERS

Directions:

Fill in the frame.

1 $-14 \cdot \square = -14$	7 $\square \cdot (-6+2) = (-3 \cdot -6) + (-3 \cdot 2)$
2 $3 + (7 + -5) = (3 + \square) + -5$	8 $\square \cdot 1 = -7$
3 $7 + \square = -6 + 7$	9 $-7 \cdot (5 \cdot -6) = (-7 \cdot 5) \cdot \square$
4 $\square + 0 = -4$	10 $17 \cdot \square = -4 \cdot 17$
5 $-3 \cdot (8 + -1) = (-3 \cdot 8) + (\square \cdot -1)$	11 $5(\square - 4) \cdot (5 \cdot 3) \cdot (5 \cdot 4)$
6 $-36 + \square = 0$	12 $-6 + \square = -6$

08

Selected Answers:

8 .08 .04 .01

thru

8 .08 .04 .09

NAME _____

CLASS _____

DATE _____

SUMMARY ACTIVITY FOR 8.08.04
PROPERTIES OF INTEGERS

Directions:

Fill in the right side of the property being illustrated.

1 $-7 + (8 + -1) =$ _____ Associative property for addition of integers	7 $-5 + 5 =$ _____ Additive inverse property of integers.
2 $-3 \cdot 1 =$ _____ Multiplicative identity property of integers	8 $-8 + 15 =$ _____ Commutative Property for addition of integers.
3 $-9 \cdot (3 + -4) =$ _____ Distributive property for multiplication over addition of integers.	9 $9 \cdot (-2 \cdot 8) =$ _____ Associative property for multiplication of integers.
4 $-6 + 0 =$ _____ Additive identity property of integers	10 $-9 \cdot 4 =$ _____ Commutative property for multiplication of integers
5 $(4 \cdot -6) \cdot -3 =$ _____ Associative property for multiplication of integers	11 $0 + -12 =$ _____ Additive identity property of integers.
6 $(5 \cdot -4) + (5 \cdot -3) =$ _____ Distributive property for multiplication over addition of integers.	12 $-5(-6 - 8) =$ _____ Distributive property for multiplication over subtraction

Selected Answers:

TOPIC 9

GEOMETRY

- | | | |
|---------|------------------------------------|---------------------|
| 8.09.01 | Triangles and Their Classification | (standard, 7 days) |
| 8.09.02 | Properties of Quadrilaterals | (standard, 3 days) |
| 8.09.03 | Congruent and Similar Triangles | (advanced, 12 days) |

8.09.01

TRIANGLES AND THEIR CLASSIFICATION

(Standard, 7 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- | | |
|------------|---|
| 8.09.01.01 | know that the sum of the measures of the angles of a triangle is 180° ; |
| 8.09.01.02 | determine the measure of the remaining angle of a triangle given the measures of the other two angles; |
| 8.09.01.03 | determine the measure of one acute angle of a right triangle given the measure of the other acute angle; |
| 8.09.01.04 | understand the relationship between the sides and angles of a triangle; |
| 8.09.01.05 | classify triangles according to the measures of their angles; |
| 8.09.01.06 | classify triangles according to the measures of their sides; |
| 8.09.01.07 | know that the sum of the measures of any two sides of a triangle is greater than the measure of the third side. |

09

NAME _____

CLASS _____

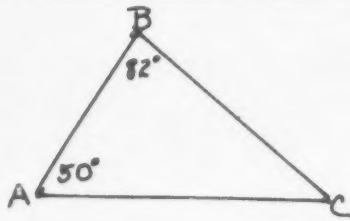
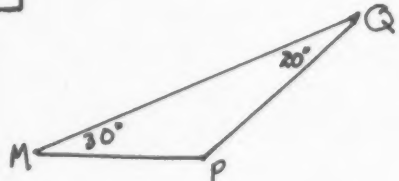
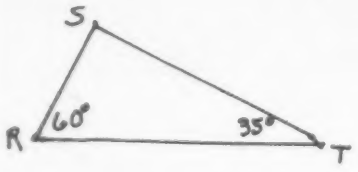
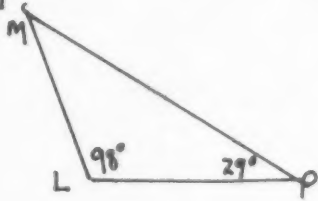
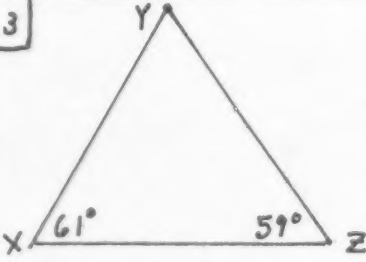
DATE _____

SUM OF THE ANGLES OF A TRIANGLE IS 180 DEGREES

GIVEN TWO ANGLES OF A TRIANGLE DETERMINE THE REMAINING ANGLE

Directions:

Find the measure of the indicated angle.

1  $m\angle C =$ _____	4  $m\angle P =$ _____
2  $m\angle S =$ _____	5  $m\angle M =$ _____
3  $m\angle Y =$ _____	6  $m\angle K =$ _____



Selected Answers:

NAME _____

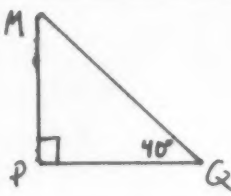
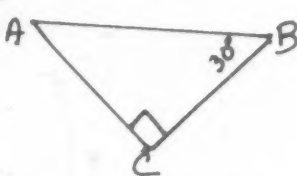
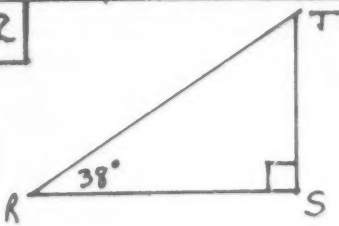
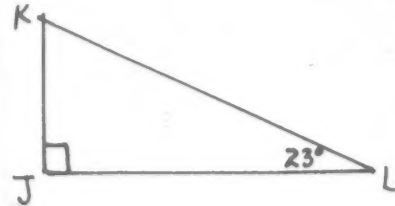
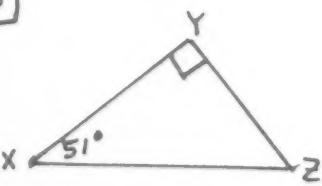
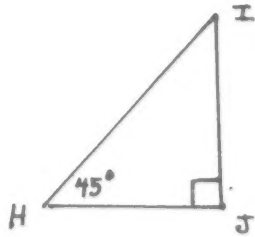
CLASS _____

DATE _____

FIND THE ACUTE ANGLE OF A RIGHT TRIANGLE WHEN GIVEN THE OTHER

Directions:

Find the measure of the indicated angle.

1  $m\angle M =$ _____	4  $m\angle A =$ _____
2  $m\angle T =$ _____	5  $m\angle K =$ _____
3  $m\angle Y =$ _____	6  $m\angle I =$ _____



Selected Answers:

NAME _____

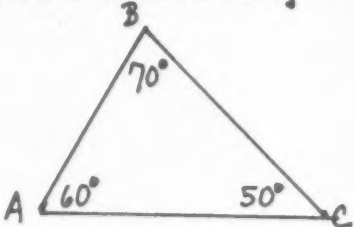
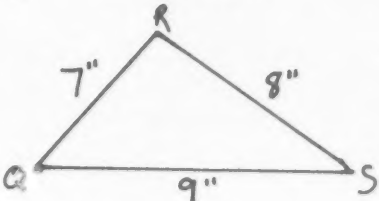
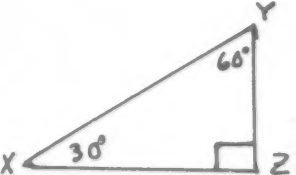
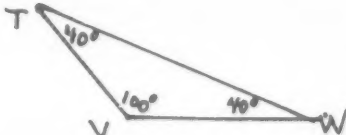
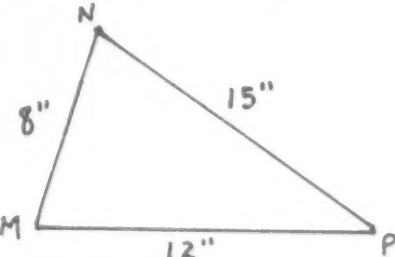
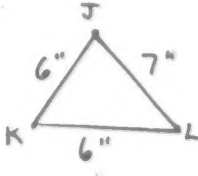
CLASS _____

DATE _____

RELATIONSHIPS BETWEEN THE SIDES AND ANGLES OF A TRIANGLE

Directions:

(Given below).

1 Which side is largest? 	4 Which angle is smallest? 
2 Which side is shortest? 	5 Which sides are equal in length? 
3 Which angle is largest? 	6 Which angles have equal measures? 

Selected Answers:



NAME _____

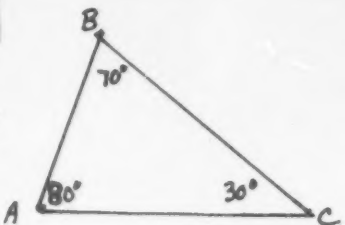
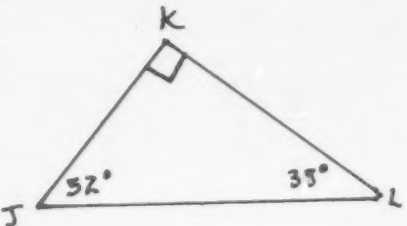
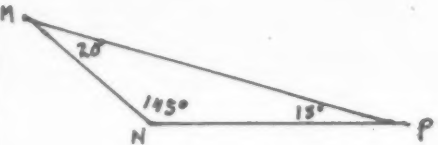
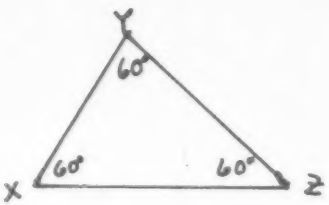
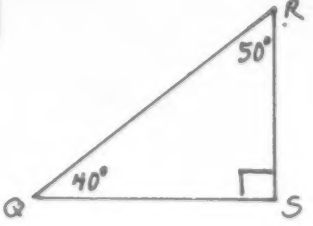
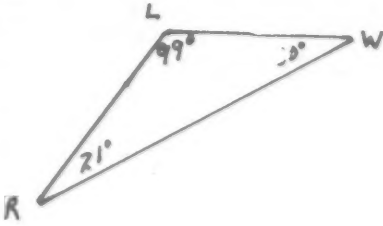
CLASS _____

DATE _____

CLASSIFY TRIANGLES ACCORDING TO THEIR ANGLES

Directions:

Classify each triangle according to its angles.

1 	4 
2 	5 
3 	6 

Selected Answers:

NAME _____

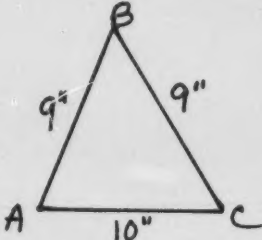
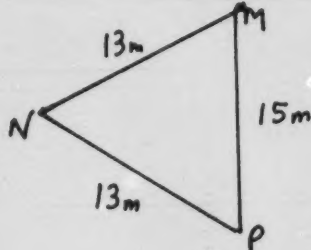
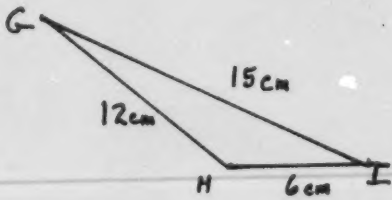
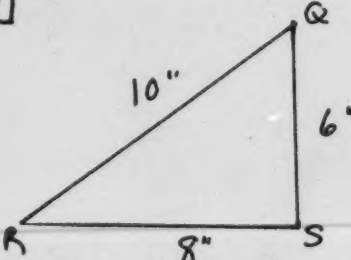
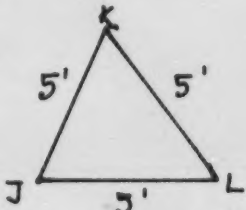
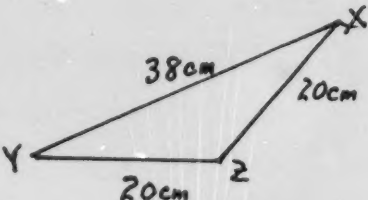
CLASS _____

DATE _____

CLASSIFY TRIANGLES ACCORDING TO THE MEASURE OF THEIR SIDES

Directions:

Classify each triangle according to its sides.

1 	4 
2 	5 
3 	6 



Selected Answers:

NAME _____

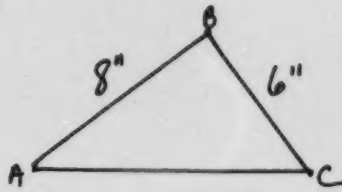
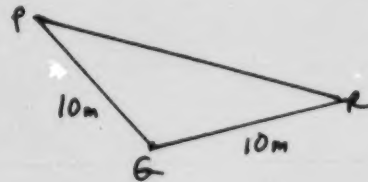
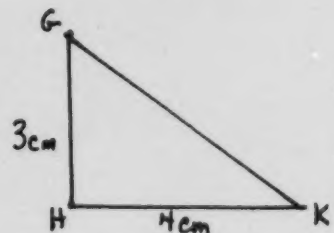
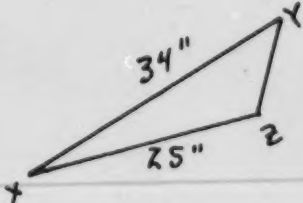
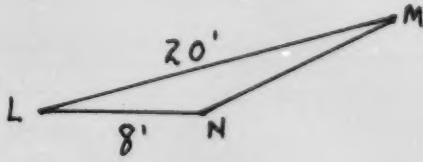
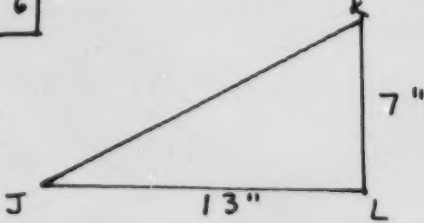
CLASS _____

DATE _____

SUM OF TWO SIDES OF A TRIANGLE IS GREATER THAN THE THIRD

Directions:

For each triangle give three possible lengths for the missing side.

1 	4 
2 	5 
3 	6 



Selected Answers:

8.09.02

PROPERTIES OF QUADRILATERALS

(Standard, 3 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- | | |
|------------|--|
| 8.09.02.01 | identify a parallelogram as a quadrilateral with both pairs of opposite sides parallel; |
| 8.09.02.02 | know that a parallelogram has opposite sides congruent; |
| 8.09.02.03 | identify a rectangle as a parallelogram with four right angles; |
| 8.09.02.04 | identify a rhombus as a parallelogram with adjacent sides congruent; |
| 8.09.02.05 | identify a square as a rectangle with congruent adjacent sides or a rhombus with right angles; |
| 8.09.02.06 | identify a trapezoid as a quadrilateral with one pair of opposite sides parallel. |

09

8 .09 .02 .01

8 .09 .02 .02

NAME _____

CLASS _____

DATE _____

OPPOSITE SIDES OF A PARALLELOGRAM ARE PARALLEL
 OPPOSITE SIDES OF A PARALLELOGRAM ARE CONGRUENT

Directions:

(Given below).

1 Which are parallelograms? WHY?

2 Given parallelogram ABCD and parallelogram LMNP:

Ⓐ Which side is parallel to $\overline{AB}$? _____

Ⓑ Name all the parallel sides in parallelogram LMNP. _____

Ⓒ Name all congruent sides in parallelogram ABCD. _____

Ⓓ If $\overline{DC} = 12$, how long is $\overline{AB}$? _____

Ⓔ If $\overline{LM} = 9\text{cm}$, how long is $\overline{NP}$? _____

Selected Answers:

09

NAME _____

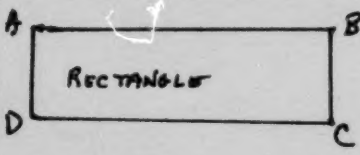
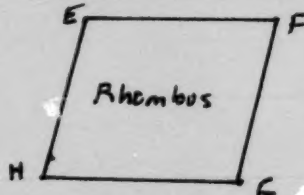
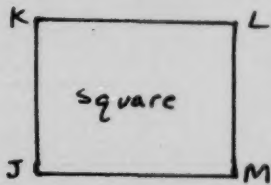
CLASS _____

DATE _____

A RECTANGLE IS A PARALLELOGRAM WITH RIGHT ANGLES
 A RHOMBUS IS A PARALLELOGRAM WITH CONGRUENT, ADJACENT SIDES
 RELATIONSHIPS BETWEEN SQUARES, RECTANGLES AND RHOMBI.

Directions:

(Given below).

				
1. Which side is parallel to $\overline{BC}$? _____ ② If $\overline{DC} = 3'$, how long is $\overline{AB}$? _____; $\overline{AD}$? _____ ③ What is $m\angle A$? _____; $m\angle B$? _____; $m\angle C$? _____; $m\angle D$? _____				
2. Which side is parallel to $\overline{EF}$? _____; $\overline{FG}$? _____ ② If $\overline{HG} = 12\text{cm}$, how long is $\overline{EF}$? _____; $\overline{EH}$? _____; $\overline{FG}$? _____				
3. Which side is parallel to $\overline{KJ}$? _____; $\overline{JM}$? _____ ② If $\overline{LM} = 16''$, how long is $\overline{MJ}$? _____; $\overline{JK}$? _____; $\overline{KL}$? _____; ③ What is $m\angle J$? _____; $m\angle K$? _____; $m\angle L$? _____; $m\angle M$? _____				
4. True or False <table style="width: 100%;"> <tr> <td style="width: 50%;"> Ⓐ A square is a rectangle. _____ Ⓑ A rectangle is a rhombus. _____ Ⓒ A rhombus is a square. _____ Ⓓ A square is a parallelogram. _____ Ⓔ A rectangle has 4 Congruent sides. _____ </td> <td style="width: 50%;"> Ⓕ A square has 4 Congruent angles. _____ Ⓖ A rectangle has 4 Congruent angles. _____ Ⓗ A rhombus has 4 Congruent angles. _____ </td> </tr> </table>			Ⓐ A square is a rectangle. _____ Ⓑ A rectangle is a rhombus. _____ Ⓒ A rhombus is a square. _____ Ⓓ A square is a parallelogram. _____ Ⓔ A rectangle has 4 Congruent sides. _____	Ⓕ A square has 4 Congruent angles. _____ Ⓖ A rectangle has 4 Congruent angles. _____ Ⓗ A rhombus has 4 Congruent angles. _____
Ⓐ A square is a rectangle. _____ Ⓑ A rectangle is a rhombus. _____ Ⓒ A rhombus is a square. _____ Ⓓ A square is a parallelogram. _____ Ⓔ A rectangle has 4 Congruent sides. _____	Ⓕ A square has 4 Congruent angles. _____ Ⓖ A rectangle has 4 Congruent angles. _____ Ⓗ A rhombus has 4 Congruent angles. _____			

Selected Answers:

NAME _____

CLASS _____

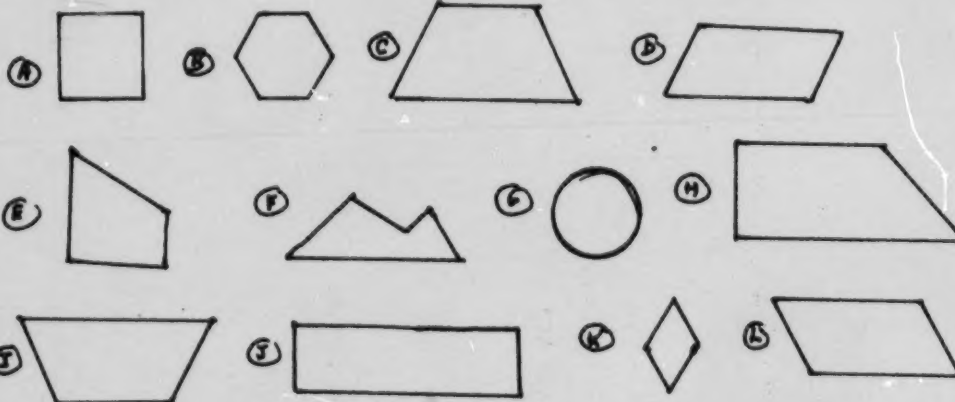
DATE _____

IDENTIFY A TRAPEZOID AND ITS PROPERTIES

Directions:

(Given below).

1 Which are trapezoids? Why?

2 True or False. Explain your answer.

- Ⓐ A trapezoid is a parallelogram.
- Ⓑ A trapezoid has one pair of congruent sides.
- Ⓒ Opposite sides of a trapezoid are parallel.
- Ⓓ A trapezoid is a quadrilateral.

Selected Answers:

8.09.03

CONGRUENT AND SIMILAR TRIANGLES

(advanced, 12 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.09.03.01 recognize by observation congruent triangles;
- 8.09.03.02 recognize the corresponding angles and corresponding sides of congruent triangles;
- 8.09.03.03 recognize that the corresponding angles and corresponding sides of congruent triangles are congruent;
- *8.09.03.04 construct (with compass and straight edge) a line segment congruent to a given line segment;
- *8.09.03.05 construct (with compass and straight edge) an angle congruent to a given angle;
- *8.09.03.06 construct (with compass and straight edge) a triangle congruent to a given triangle by $SSS \cong SSS$, $SAS \cong SAS$, $ASA \cong ASA$, and $Hyp. Leg \cong Hyp. Leg$;
- 8.09.03.07 recognize that two triangles are congruent by $SSS \cong SSS$, $SAS \cong SAS$, $ASA \cong ASA$, $Hyp. Leg \cong Hyp. Leg$;
- 8.09.03.08 recognize similar triangles by observation;
- 8.09.03.09 recognize corresponding sides and corresponding angles of similar triangles;

* This I.O. is not tested in an ISS test.

8.09.03

- 8.09.03.10 recognize that two triangles are similar by $aaa \cong aaa$ and $aa \cong aa$, and vice versa;
- 8.09.03.11 recognize that corresponding sides of similar triangles are in proportion and that corresponding angles are congruent;
- 8.09.03.12 determine the length of a side of a triangle given one side and two corresponding sides of a similar triangle;
- 8.09.03.13 solve shadow problems involving similar triangles.

TOPIC 10

MEASUREMENT

- | | | |
|---------|-----------------------------------|---------------------|
| 8.10.01 | Lines and Angles in a Plane | (standard, 8 days) |
| 8.10.02 | Area | (standard, 12 days) |
| 8.10.03 | Volume | (standard, 7 days) |
| 8.10.04 | Approximate Nature of Measurement | (advanced, 10 days) |

8.10.01

LINES AND ANGLES IN A PLANE

(standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.10.01.01 recognize vertical and adjacent angles;
- 8.10.01.02 know that vertical angles are congruent;
- 8.10.01.03 know that two angles are supplementary when the sum of their measures is 180° ;
- 8.10.01.04 know that two adjacent angles whose exterior sides form a line are supplementary;
- 8.10.01.05 know that two angles are complementary when the sum of their measures is 90° ;
- 8.10.01.06 know that two adjacent angles whose exterior rays form a right angle are complementary;
- 8.10.01.07 recognize and know that two intersecting lines that form right angles are perpendicular;
- 8.10.01.08 recognize the angles formed by the intersection of two lines and a transversal and that they are named:
- a) interior angles
 - b) exterior angles
 - c) alternate interior angles
 - d) alternate exterior angles
 - e) corresponding angles

10

continued ...

8 .10 .01 .01

8 .10 .01 .02

NAME _____

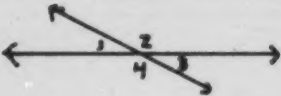
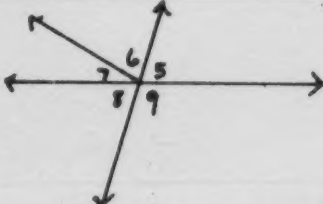
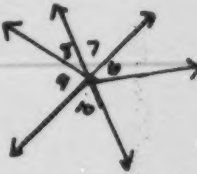
CLASS _____

DATE _____

RECOGNIZE VERTICAL AND ADJACENT ANGLES
KNOW THAT VERTICAL ANGLES ARE CONGRUENT

Directions:

(Given below).

1  Ⓐ Name a pair of vertical angles. _____ Ⓑ Name a pair of adjacent angles. _____ Ⓒ Which pairs of angles are congruent? _____ and _____	2  Ⓐ Which angle(s) are adjacent to $\angle 8$? _____ Ⓑ A pair of vertical angles is $\angle 8$ and _____. Ⓒ If $m\angle 5 = 75^\circ$, what is the measure of angle 8? _____.
3  Ⓐ Name <u>3</u> pairs of adjacent angles. _____, _____; _____, _____; _____, _____ Ⓑ If $m\angle 5 = 65^\circ$ can you determine the measure of $\angle 6$? WHY?	4  Ⓐ Name a pair of vertical angles. _____, _____ Ⓑ Name a pair of congruent angles. _____ WHY are they congruent? Ⓒ If $m\angle 7 = 52^\circ$, what is the measure of $\angle 10$? _____

Selected Answers:

NAME _____

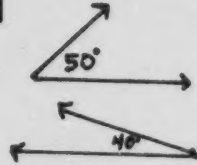
CLASS _____

DATE _____

THE SUM OF SUPPLEMENTARY ANGLES IS 180 DEGREES

Directions:

- (1-3) Determine if each pair of angles is supplementary.
(4-9) Find the supplement.

1 $40^\circ, 40^\circ$	2 $75^\circ, 105^\circ$	3 
4 68°	5 132°	6 19°
7 180°	8 	9 $57\frac{1}{2}^\circ$

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Selected Answers:

8 .10 .01 .04

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NAME _____

CLASS _____

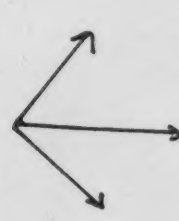
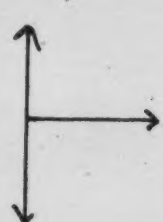
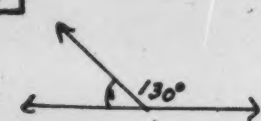
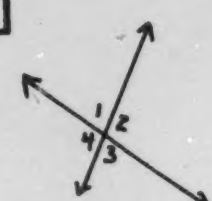
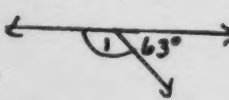
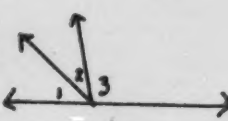
DATE _____

IDENTIFYING SUPPLEMENTARY ADJACENT ANGLES

Directions:

(1-4) Which are adjacent angles that are supplementary?

(5-9) Find the indicated angles.

1 	2 	3 
4 	5  What is the measure of angle 1? _____	6  What is the measure of angle 4? _____
7  $m\angle 1 + m\angle 2 =$ _____	8  What is the measure of angle 1? _____	9  $m\angle 3 = 97^\circ$ What is the <u>sum</u> of the measures of angles 1 and 2? _____

Selected Answers:

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8. 10. 01. 05

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NAME _____

CLASS _____

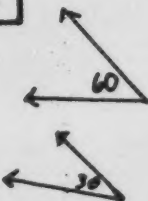
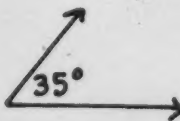
DATE _____

THE SUM OF COMPLEMENTARY ANGLES IS 90 DEGREES

Directions:

(1-3) Determine if each pair of angles is complementary.

(4-9) Find the complement.

1 $56^\circ, 34^\circ$	2 $60^\circ, 60^\circ$	3 
4 16°	5 0°	6 87°
7 90°	8 	9 $42\frac{1}{2}^\circ$

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Selected Answers:

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NAME _____

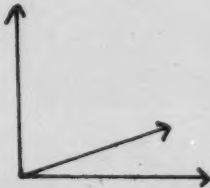
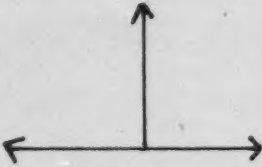
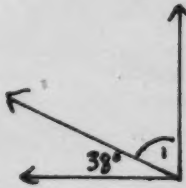
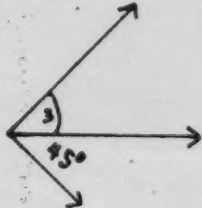
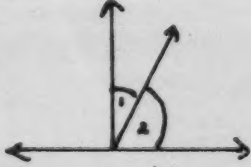
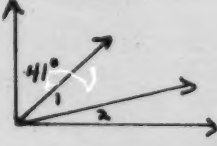
CLASS _____

DATE _____

TWO ADJACENT ANGLES FORMING A RIGHT ANGLE ARE COMPLEMENTARY

Directions:

- (1-4) Which are adjacent angles that are complementary?
 (5-9) Find the indicated angles.

1 	2 	3 
4 	5  What is the measure of angle 1? _____	6  What is the measure of $\angle 3$? _____
7  $m\angle 1 + m\angle 2 =$ _____	8  What is the sum of the measures of angle 5 and angle 6? _____	9  What is the sum of the measures of angle 1 and angle 2? _____

Selected Answers:

NAME _____

CLASS _____

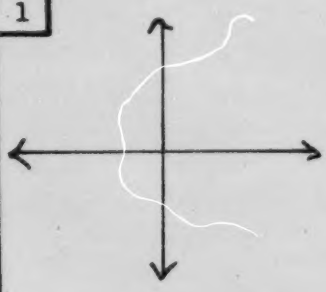
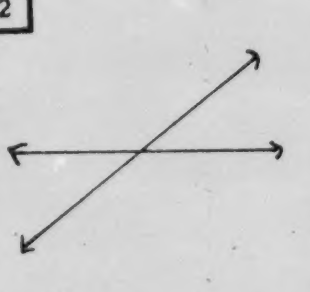
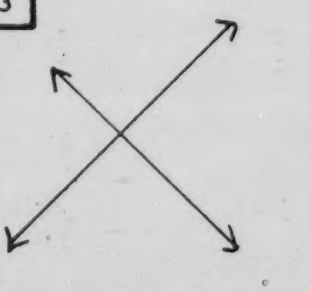
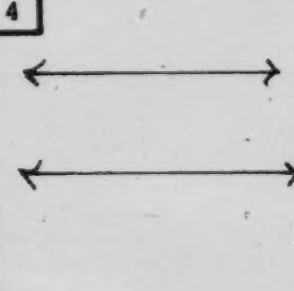
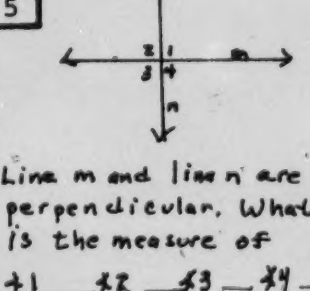
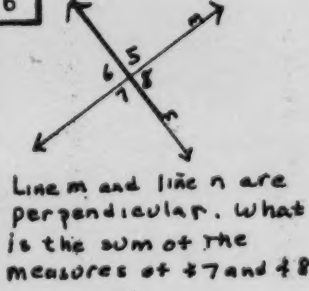
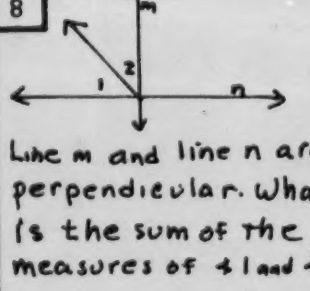
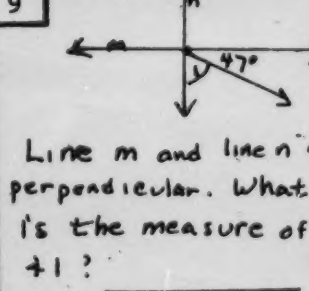
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RECOGNIZING PERPENDICULAR LINES

Directions:

(1-4) Which are perpendicular lines?

(5-9) Given below

1 	2 	3 
4 	5  Line m and line n are perpendicular. What is the measure of $\angle 1$ $\angle 2$ $\angle 3$ $\angle 4$ _____	6  Line m and line n are perpendicular. What is the sum of the measures of $\angle 7$ and $\angle 8$?
7 <u>True or False, why?</u> Perpendicular lines form four obtuse angles.	8  Line m and line n are perpendicular. What is the sum of the measures of $\angle 1$ and $\angle 2$? _____	9  Line m and line n are perpendicular. What is the measure of $\angle 1$? _____

Selected Answers:

NAME _____

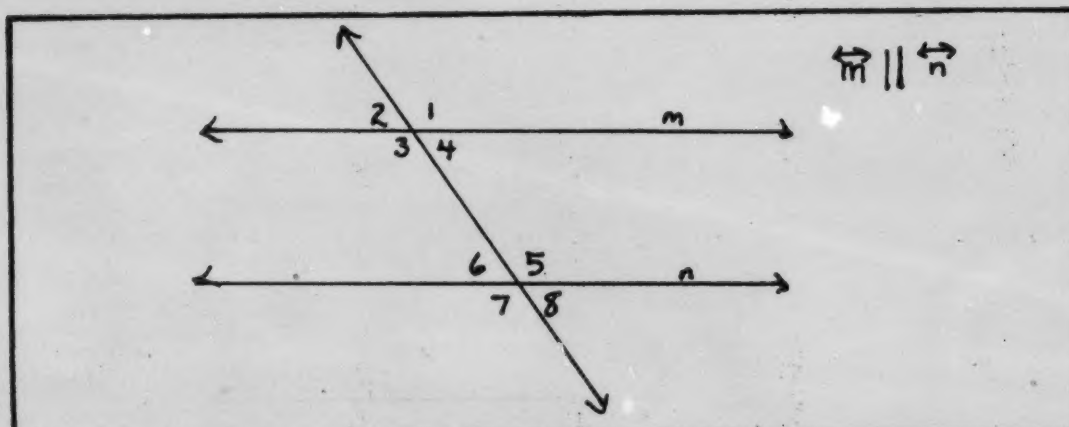
CLASS _____

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ANGLES FORMED BY PARALLEL LINES AND A TRANSVERSAL

Directions:

(Given below).



1 Name four pairs of corresponding angles.

_____, _____, _____, _____

2 Name all the interior angles.

3 Name all the exterior angles.

4 Name two pairs of alternate interior angles.

_____, _____, _____, _____

5 Name two pairs of alternate exterior angles.

_____, _____, _____, _____

6 If $m\angle 1 = 110^\circ$ find the measures of the remaining angles.

$m\angle 2 =$ _____ $m\angle 3 =$ _____ $m\angle 4 =$ _____ $m\angle 5 =$ _____ $m\angle 6 =$ _____ $m\angle 7 =$ _____ $m\angle 8 =$ _____

Selected Answers:

8.10.01

8.10.01.09 know that when two parallel lines are intersected by a transversal, the alternate interior, alternate exterior, and corresponding angles are congruent and vice versa;

8.10.01.10 know that one and only one line may be drawn parallel to a given line through an external point;

*8.10.01.11 construct a line parallel to a given line through an external point.

*This I.O. is not tested on an I.S.S. Test.

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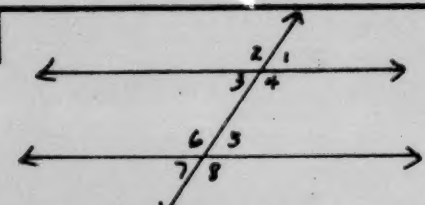
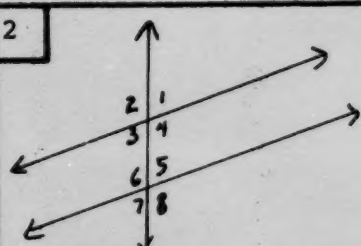
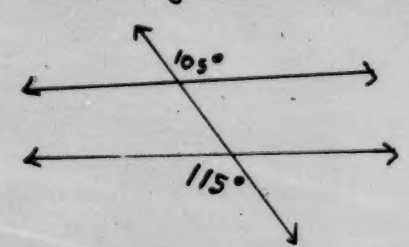
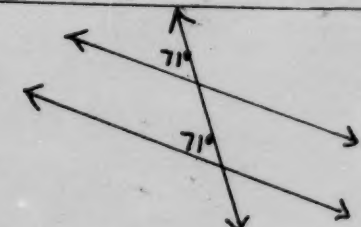
CLASS _____

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CONGRUENT ANGLES AND PARALLEL LINES

Directions:

(Given below).

1  ① If $m\angle 1 = 68^\circ$, what is the measure of: $\angle 5$ _____ $\angle 7$ _____ ② What name do we use to describe: $\angle 1$ and $\angle 7$ _____ $\angle 1$ and $\angle 5$ _____	2  ① If $m\angle 3 = 80^\circ$, what is the measure of: $\angle 7$ _____ $\angle 5$ _____ ② What name do we use to describe: $\angle 3$ and $\angle 7$ _____ $\angle 3$ and $\angle 5$ _____
3 Determine if the following lines are parallel. Use the given information. 	4 Determine if the following lines are parallel. Use the given information. 

Selected Answers:

8.10.02

AREA

(standard, 12 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.10.02.01 recognize the formula for and compute the area of a triangular region;
- 8.10.02.02 recognize the formula for and compute the area of a parallelogram region;
- 8.10.02.03 recognize the formula for and compute the area of a trapezoidal region;
- 8.10.02.04 recognize the formula for and compute the area to the nearest tenth of a given circular region.
- 8.10.02.05 solve verbal problems involving the area of triangular, parallelogram, and circular regions.

NAME _____

CLASS _____

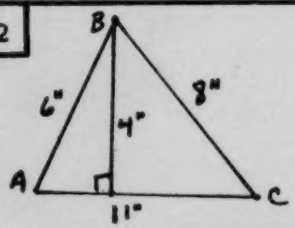
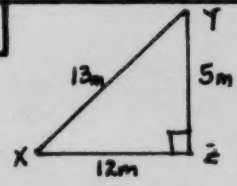
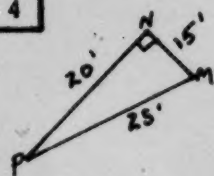
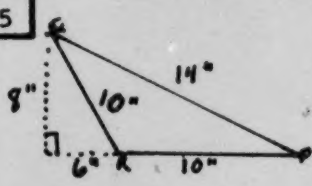
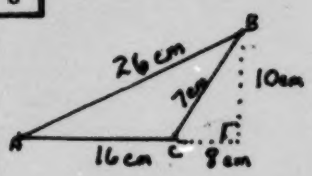
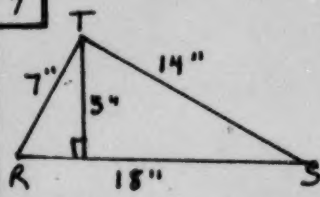
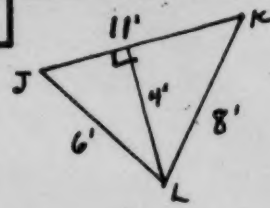
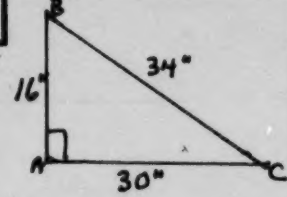
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RECOGNIZE AND APPLY THE FORMULA FOR THE AREA OF A TRIANGLE

Directions:

(1) Given below.

(2-9) Find the area of each triangular region.

1 What is the formula for finding the area of a triangular region?	2  Area $\triangle ABC =$ _____	3  Area $\triangle XYZ =$ _____
4  Area $\triangle MNP =$ _____	5  Area $\triangle PQR =$ _____	6  Area $\triangle ABC =$ _____
7  Area $\triangle RST =$ _____	8  Area $\triangle JKL =$ _____	9  Area $\triangle ABC =$ _____

Selected Answers:

NAME _____

CLASS _____

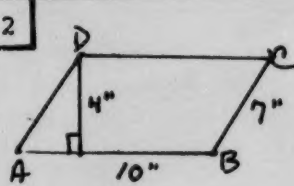
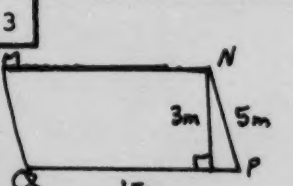
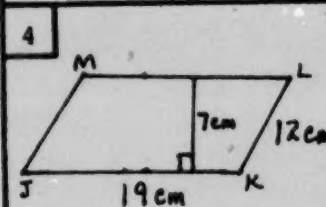
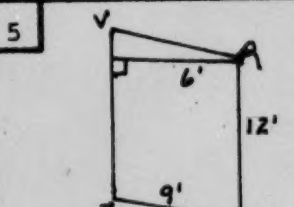
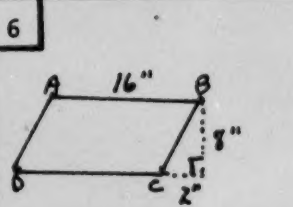
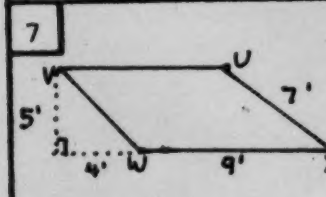
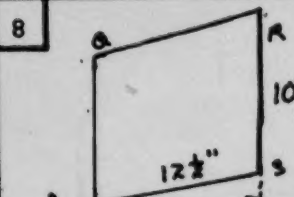
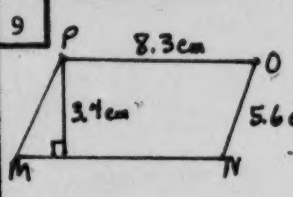
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RECOGNIZE AND APPLY THE FORMULA FOR THE AREA OF A PARALLELOGRAM

Directions:

(1) Given below.

(2-9) Find the area of each parallelogram region.

1 What is the formula for finding the area of a parallelogram region?	2  Area $\square ABCD =$ _____	3  Area $\square MNPQ =$ _____
4  Area $\square JKLM =$ _____	5  Area $\square RSTV =$ _____	6  Area $\square ABCD =$ _____
7  Area $\square UVWX =$ _____	8  Area $\square PGRS =$ _____	9  Area $\square MNOP =$ _____

Selected Answers:

NAME _____

CLASS _____

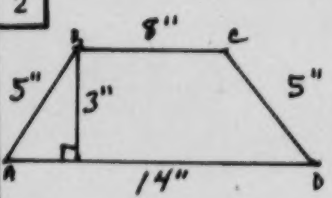
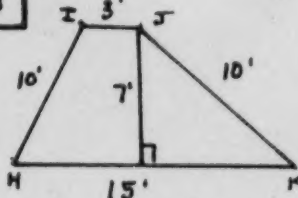
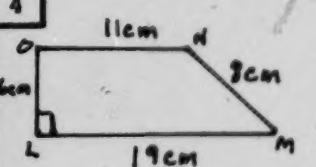
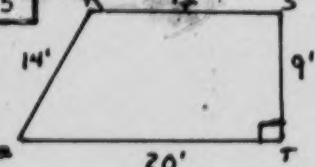
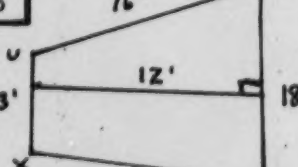
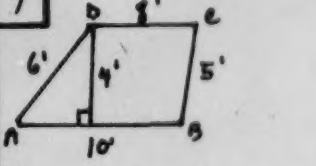
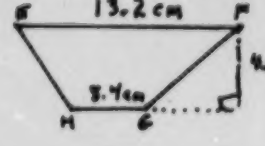
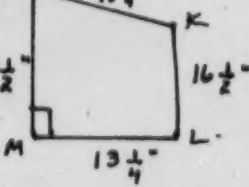
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RECOGNIZE AND APPLY THE FORMULA FOR THE AREA OF A TRAPEZOID

Directions:

(1) Given below.

(2-9) Find the area of each trapezoidal region.

1 What is the formula for finding the area of a trapezoidal region?	2  Area Trap ABCD = _____	3  Area trap HJK = _____
4  Area trap LMNO = _____	5  Area trap QAST = _____	6  Area trap UVWX = _____
7  Area trap ABCD = _____	8  Area trap EFHG = _____	9  Area trap JKLM = _____

Selected Answers:

NAME _____

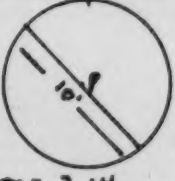
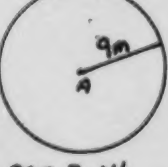
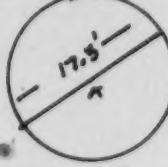
CLASS _____

DATE _____

RECOGNIZE AND APPLY THE FORMULA FOR THE AREA OF A CIRCLE

Directions:

- (1) Given below.
 (2-9) Find the area of each circular region.

1 Write a formula for finding the area of a circular region.	2  Use $\pi = 3.14$	3  Use $\pi = 3.14$
4  Use $\pi = 3\frac{1}{2}$	5  Use $\pi = 3\frac{1}{2}$	6  Use $\pi = 3.14$
7  Use $\pi = 3.14$	8  Use $\pi = 3\frac{1}{2}$	9  Use $\pi = 3.14$

Selected Answers:

NAME _____

CLASS _____

DATE _____

SOLVE PROBLEMS INVOLVING THE AREA OF TRIANGLES, CIRCLES, ETC.

Directions:

Solve each problem.

- 1 Mrs. Rose has a circular garden 18 feet in diameter. What is the area of the garden?
- 2 Mr. Reelter purchased a tract of land in the shape of a trapezoid with bases 250' and 175'. If the height is 190', what is the total number of square feet he purchased?
- 3 A stadium dome is made up of 6 parallelograms fused together. The base and height of each parallelogram measures 38' and 17' respectively. What is the surface area of the stadium dome?
- 4 A painter is hired to paint a triangular sign on both sides. How many square meters does he have to paint if the base and height of the sign measures 12m and 14m respectively?
- 5 A circular patio is to be recemented. How many square feet has to be redone, if the diameter of the patio is 17.2'?
- 6 A crosswalk in the shape of a parallelogram has to be repaved. How many square meters are involved if the base and height of the parallelogram measures $15\frac{1}{2}$ m and $4\frac{1}{2}$ m respectively?

Selected Answers:

8.10.03

VOLUME

(standard, 7 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.10.03.01 understand that the basic unit of volume is a unit cube;
- 8.10.03.02 recognize the formula for and compute the volume of a given prism;
- 8.10.03.03 recognize the formula for and compute the volume of a given cube;
- 8.10.03.04 recognize the formula for and compute the volume of a given cylinder;
- 8.10.03.05 solve verbal problems involving volume of prisms and cylinders.

8 .10 .03 .01

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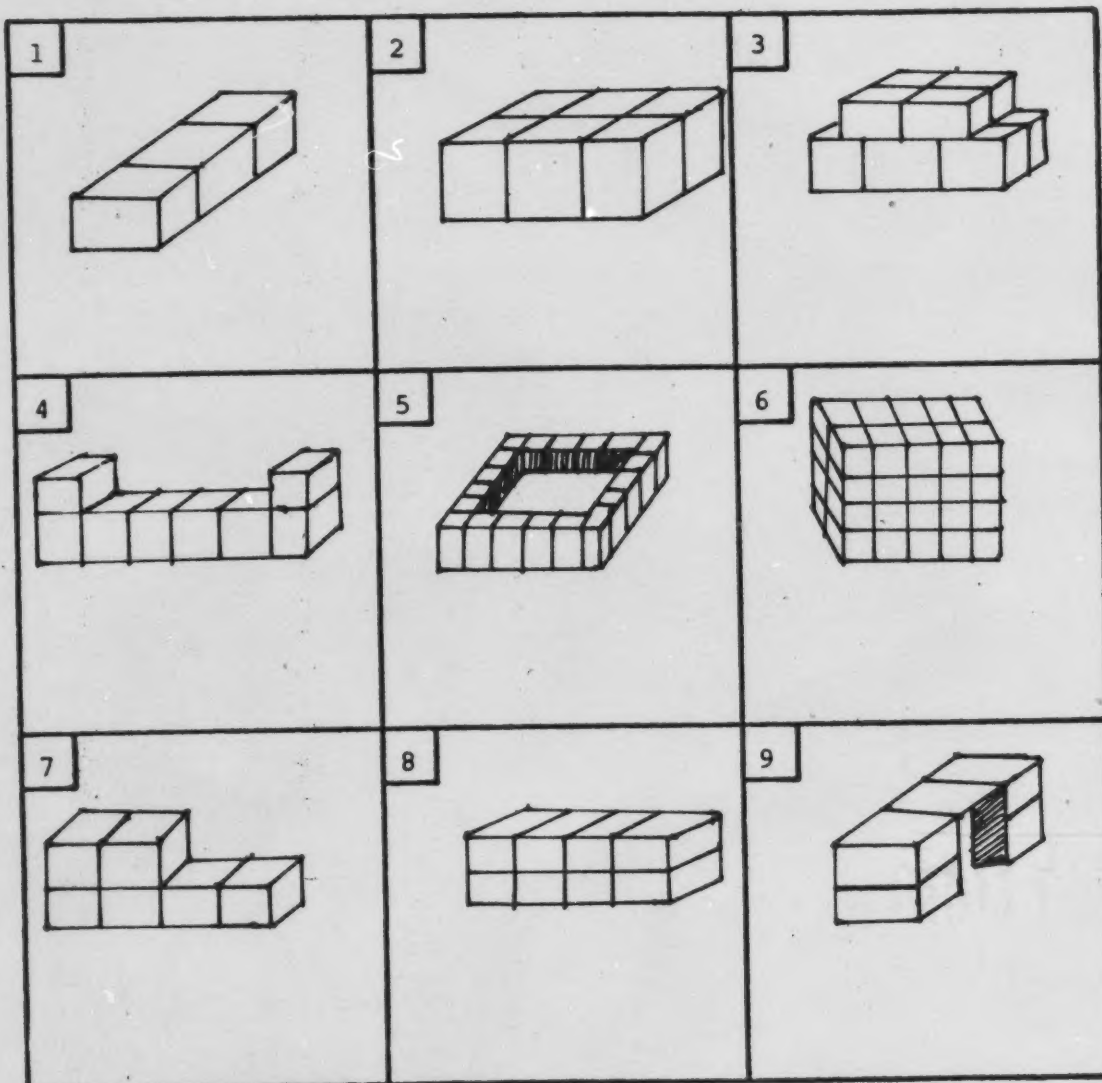
CLASS _____

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BASIC UNIT OF VOLUME IS A UNIT CUBE

Directions:

What is the volume of each solid formed by one inch cubes?



Selected Answers:

8 . 10 . 03 . 02

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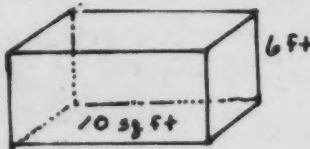
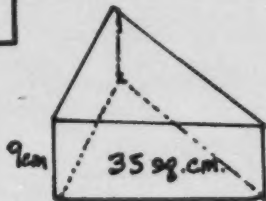
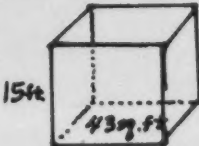
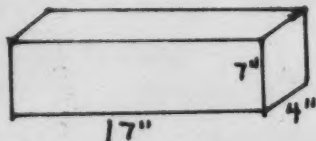
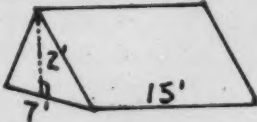
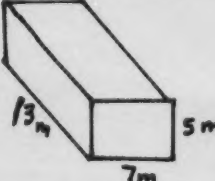
CLASS _____

DATE _____

RECOGNIZE AND APPLY THE FORMULA FOR VOLUME OF A PRISM

Directions:

- (1-6) Find the volume of each prism.
(7-9) Given below.

1 	2 	3 
4 	5 	6 
7 What is the volume of a rectangular prism which measures $2.5'' \times 3'' \times 1.4''$?	8 What is the volume of a rectangular prism which measures $5\frac{1}{2}\text{cm} \times 6\frac{1}{2}\text{cm} \times 10\text{cm}$?	9 The volume of a rectangular prism is 200 sq. ft. If the length is 10' and the width is 5' what is the height ?

10

Selected Answers:

124

-27b-

NAME _____

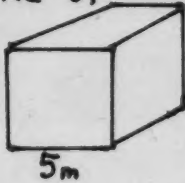
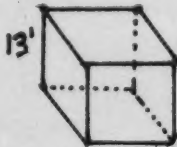
CLASS _____

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RECOGNIZE AND APPLY THE FORMULA FOR VOLUME OF A CUBE

Directions:

(Given below).

1 Find the volume of the cube. 	4 What is the volume of a cube whose edge measures $5\frac{1}{3}$?
2 Find the volume of the cube. 	5 What is the measure of an edge of a cube whose volume is 8 cu.ft.?
3 What is the volume of a cube whose edge measures 4.3"?	6 What is the area of the base of a cube whose volume is 64 cu.meters?

Selected Answers:

NAME _____

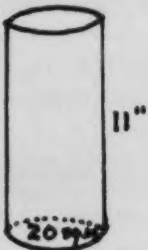
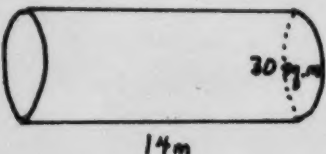
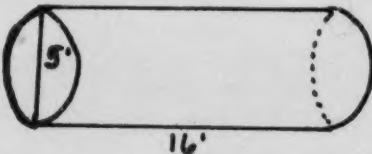
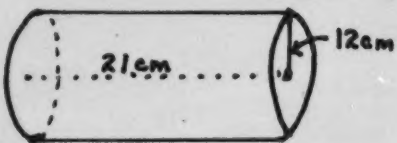
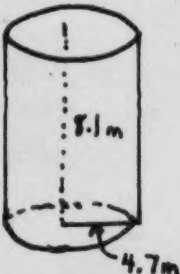
CLASS _____

DATE _____

RECOGNIZE AND APPLY THE FORMULA FOR VOLUME OF A CYLINDER

Directions:

Find the volume of each cylinder.

1 	4 
2  Use $\pi = 3\frac{1}{7}$	5  Use $\pi = 3.14$
3  Use $\pi = 3\frac{1}{7}$	6  Use $\pi = 3.14$

Selected Answers:

NAME _____

CLASS _____

DATE _____

SOLVE WORD PROBLEMS INVOLVING VOLUME OF PRISMS AND CYLINDERS

Directions:

Solve each problem.

- 1 How many cubic inches are there in a can of Heinz noodle soup, if the diameter and height of the can measure $4\frac{1}{2}$ " and 8" respectively?
- 2 A metal box which measures 6cm x 9cm x 4cm is filled with dirt. How many cubic centimeters of dirt is there?
- 3 Mrs. Sweet uses 4 lumps of sugar in her coffee. If each lump measures $\frac{1}{2}$ cm on its edge, how many cubic centimeters of sugar did she use?
- 4 The Alaskan pipeline uses sections of cylindrical pipe 2 feet wide and 18 feet long. How many cubic feet of oil will each section hold?
- 5 A box of blocks measures 200dm x 120dm x 90dm. If each block is a cube 1 dm on its edge, how many blocks will fit in the box?
- 6 A caramel candy bar consists of 5 cubic pieces of candy each measuring 12mm on its edge. What is the volume of the bar?

Selected Answers:

8.10.04

APPROXIMATE NATURE OF MEASUREMENT

(advanced, 10 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.10.04.01 understand the approximate nature of
 a given measurement;
- 8.10.04.02 determine the precision of a given
 measurement;
- 8.10.04.03 determine the greatest possible error
 of a given measurement;
- 8.10.04.04 determine the relative error of a given
 measurement;
- 8.10.04.05 determine the accuracy of a given
 measurement (by using relative error);
- 8.10.04.06 determine the number of significant
 digits of a given measurement;
- 8.10.04.07 determine the accuracy of a given
 measurement (by using significant
 digits);
- 8.10.04.08 write a number in scientific notation.

TOPIC 11

ALGEBRAIC CONCEPTS

- 8.11.01 Applying the Order of Operations (standard, 8 days)
- 8.11.02 Evaluating an Algebraic Expression (standard, 7 days)
- 8.11.03 Open Sentences and Equations (standard, 8 days)
- 8.11.04 Solving and Graphing Inequalities (standard, 9 days)
by Inspection
- 8.11.05 Solving Equations by Properties
of Equality (standard, 15 days)
- 8.11.06 Translating (standard, 8 days)
- 8.11.07 Verbal problems (standard, 5 days)
- 8.11.08 Solving Inequalities by
Properties of Inequalities (advanced, 8 days)
- 8.11.09 Finding Solutions and Graphing
a Linear Equation in one variable. (advanced, 12 days)

8.11.01

APPLYING THE ORDER OF OPERATIONS

(Standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.01.01 apply the order of operations for addition and subtraction of integers;
- 8.11.01.02 apply the order of operations for multiplication and division of integers;
- 8.11.01.03 apply the order of operations for addition, subtraction, multiplication, and division of integers;
- 8.11.01.04 apply the order of operations for the four basic operations and powers of integers;
- 8.11.01.05 apply the order of operations for the four basic operations, powers and parentheses;
- 8.11.01.06 apply the order of operations for absolute values.



8 .11 .01 .01

8 .11 .01 .02

NAME _____

CLASS _____

DATE _____

ORDER OF OPERATIONS-ADDITION AND SUBTRACTION OF INTEGERS
ORDER OF OPERATIONS-MULTIPLICATION AND DIVISION OF INTEGERS

Directions:

Compute.

1 $9 - 3 + 1 = \square$	7 $16 \div 4 \cdot 2 = \square$
2 $5 + 6 - 10 - 1 = \square$	8 $7 \cdot 12 \div 3 = \square$
3 $-3 - 2 + -7 = \square$	9 $64 \div 8 \div 4 = \square$
4 $12 - -9 - 8 + -1 = \square$	10 $9 \cdot 6 \div 3 \cdot 2 = \square$
5 $-34 - 34 + -34 = \square$	11 $36 \div 9 \cdot 4 \div 2 = \square$
6 $6 + 3 - 17 - -2 = \square$	12 $25 \cdot 4 \div 2 \cdot 5 = \square$

Selected Answers:



NAME _____

CLASS _____

DATE _____

APPLY THE ORDER OF OPERATIONS FOR FOUR BASIC OPERATIONS

Directions:

Compute.

1 $6 + 4 \cdot 5 = \square$	7 $-40 \cdot 10 \div 5 - 7 \cdot 10 = \square$
2 $50 - 10 \div 2 = \square$	8 $16 - 1 - 14 \div 7 = \square$
3 $13 + 5 \cdot 6 - 10 = \square$	9 $-56 \div 8 - 6 \cdot 3 = \square$
4 $-45 \div 9 - 3 \cdot 4 = \square$	10 $9 - 6 \cdot 5 = \square$
5 $8 \cdot 3 \div 2 - 6 = \square$	11 $-4 - 30 \div 6 + 4 = \square$
6 $35 + 9 \div 3 \cdot 2 = \square$	12 $5 + -2 \cdot 7 - 4 \div 2 \cdot 2 = \square$

Selected Answers:



NAME _____

CLASS _____

DATE _____

ORDER OF OPERATIONS FOR BASIC OPERATIONS AND POWERS OF INTEGERS

Directions:

Compute.

1 $3 \cdot 8^2 = \square$	7 $6^2 \cdot 5 - 6 \cdot 5^2 = \square$
2 $5 + 4^2 = \square$	8 $-8 + 3 \cdot 2^3 - 4 = \square$
3 $9 - 3^3 = \square$	9 $9 \cdot 4^3 - 7^2 \cdot 3 = \square$
4 $5^2 + 1^2 = \square$	10 $11 + 3 \cdot 8^2 = \square$
5 $16 + -3^2 = \square$	11 $-4^3 - 4^3 = \square$
6 $-10^2 \cdot 3 = \square$	12 $3 - 5^3 \div 25 + 4 = \square$

Selected Answers:



8. 11. 01. 05

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NAME _____

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ORDER OF OPERATIONS FOR OPERATIONS, POWERS AND PARENTHESES

Directions:

(1-8) Compute.

(9-12) Place parentheses to get the indicated value.

1 $7 - (8 - 3) = \square$	7 $3(8 - 5)^3 = \square$
2 $14 + 3(6 + -1) = \square$	8 $5^2 - (6 - 1)^2 = \square$
3 $(10 - 6)(6 - 7) = \square$	9 $9 - 4 \cdot 2 = 10$
4 $(6 + 8) \div 7 - 3 = \square$	10 $5 \cdot 2^2 - 10 = 90$
5 $3 \cdot 2^2 - (3 \cdot 2)^2 = \square$	11 $5 - 1 \cdot 6 - 3 = 12$
6 $9 - 3^2 + (9 - 3)^2 = \square$	12 $2 \cdot 8 - 4^2 = 32$

Selected Answers:

8. 11. 01. 06

NAME _____

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ORDER OF OPERATIONS FOR ABSOLUTE VALUES

Directions:

Compute.

1 $ 7 + -3 - -1 = \square$	7 $ -5 + 3-11 = \square$
2 $ 4-9 + -1 = \square$	8 $ 15-2 \cdot 3 = \square$
3 $5 \cdot -6+3 = \square$	9 $ 6 \cdot 4-1 = \square$
4 $-6 \cdot -1 \cdot -4 = \square$	10 $-7 \cdot -7 = \square$
5 $ 4-1 + 7-6 = \square$	11 $ -2 - 3 + 5-10 = \square$
6 $ 9-13 - 10-19 = \square$	12 $ 16-7 - 7-16 = \square$

Selected Answers:

8.11.02

EVALUATING AN ALGEBRAIC EXPRESSION

(Standard, 7 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.02.01 recognize the variable in an algebraic expression;
- 8.11.02.02 evaluate an algebraic expression involving one or two substitutions using integers;
- 8.11.02.03 evaluate an algebraic expression involving more than two substitutions using integers;
- 8.11.02.04 evaluate an algebraic expression involving powers using integers;
- 8.11.02.05 evaluate an algebraic expression involving parentheses using integers;
- 8.11.02.06 evaluate an algebraic expression involving absolute value using integers;
- 8.11.02.07 evaluate a formula using integers.

8. 11. 02. 02

8. 11. 02. 03

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EVALUATE ALGEBRAIC EXPRESSIONS WITH ONE OR TWO SUBSTITUTIONS
 EVALUATE ALGEBRAIC EXPRESSIONS WITH MORE THAN TWO SUBSTITUTIONS

Directions:

Evaluate.

1 $3m+6$ when $m=4$	5 $3x+y-z$ when $x=4$, $y=-3$ and $z=6$
2 $-5ab$ when $a=3$, $b=4$	6 $A-4A+3A$ when $A=5$
3 $2L+2W$ when $L=6$, $W=9$	7 $\frac{p-3q}{q-3p}$ when $p=6$, $q=3$
4 $\frac{-b}{2a}$ when $b=-16$, $a=4$	8 $-5abc$ when $a=6$, $b=-3$, $c=5$

Selected Answers:

8 .11 .02 .04

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NAME _____

CLASS _____

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EVALUATE ALGEBRAIC EXPRESSIONS INVOLVING POWERS USING INTEGERS

Directions:

Evaluate.

1 m^2 when $m = -4$	5 $p^2 - 2p + 7$ when $p = 6$
2 $3x^2$ when $x = 5$	6 $4x^3 + 2x^2 - 9$ when $x = -1$
3 $r^2 + 3r$ when $r = -4$	7 $5a^2bc^3$ when $a = -3$, $b = 4$, $c = 2$
4 $x^2 - 2y^2$ when $x = 3$, $y = -3$	8 $b^2 - 4ac$ when $b = 3$, $a = 5$, $c = -2$

Selected Answers:

NAME _____

CLASS _____

DATE _____

EVALUATE ALGEBRAIC EXPRESSIONS INVOLVING PARENTHESES

Directions:

Evaluate.

1 $3(m-7)$ when $m=3$	5 $p+3(p+1)$ when $p=-4$
2 $2(L+W)$ when $L=10, W=7$	6 $\frac{1}{2}h(b+c)$ when $h=20$, $b=6, c=9$
3 $a+4(b-c)$ when $a=6$, $b=3, c=8$	7 $(x-y)^2$ when $x=7, y=10$
4 $(x+6)(x-4)$ when $x=3$	8 $(4x)^2 - 4x^2$ when $x=4$

Selected Answers:



8 .11 .02 .06

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NAME _____

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EVALUATING EXPRESSIONS INVOLVING ABSOLUTE VALUE

Directions:

Evaluate.

1 $ a + b $ when $a = -3, b = 6$	5 $ c^2 + cB $ when $c = -3$ $B = -1$
2 $ 3pq $ when $p = 4, q = -2$	6 $ 2m - 3 $ when $m = 5$
3 $ m^3 $ when $m = -6$	7 $ x \cdot x - y $ when $x = -5,$ $y = -1$
4 $ m+1 \cdot m-1 $ when $m = 7$	8 $\left \frac{x^2 - 1}{x + 1} \right $ when $x = -4$

Selected Answers:

NAME _____

CLASS _____

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EVALUATE A FORMULA USING INTEGERS

Directions:

(Given below).

1 Find the value of C in $C = 2\pi r$ when $r = 14$ (use $\pi = 3\frac{1}{2}$).	5 Find the value of V in $V = \pi r^2 h$ when $r = 6$, $h = 5$. (use $\pi = 3.14$)
2 Find the value of C in $C = \frac{5}{9}(F - 32)$ when $F = 77$.	6 Find the value of P in $P = 2(L + W)$ when $L = 7$, $W = 12$
3 Find the value of D in $D = b^2 - 4ac$ when $b = 1$, $a = 3$, $c = 4$.	7 Find the value of S in $S = V_0 t + \frac{1}{2} g t^2$ when $V_0 = 20$, $g = -32$, $t = 4$.
4 Find the value of A in $A = \frac{1}{2}bh$ when $b = 10$, $h = 17$.	8 Find the value of D in $D = \pi(R^2 - r^2)$ when $R = 10$, $r = 6$. (use $\pi = 3\frac{1}{2}$).

Selected Answers:

8.11.03

OPEN SENTENCES AND EQUATIONS

(Standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.03.01 identify an expression as either a phrase or a sentence;
- 8.11.03.02 identify sentences as either statements or open sentences;
- 8.11.03.03 identify sentences as either equations or inequalities;
- 8.11.03.04 identify the variable in a given open sentence;
- 8.11.03.05 determine by inspection the solution set of an equation in one variable given a finite replacement set of integers;
- 8.11.03.06 determine by inspection the solution set of an equation in one variable given an infinite replacement set of integers;
- 8.11.03.07 determine by inspection the solution set of an equation in one variable given a finite replacement set of rational numbers.

8 .11 .03 .01

8 .11 .03 .02

NAME _____

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IDENTIFY AN EXPRESSION AS EITHER A PHRASE OR A SENTENCE
 IDENTIFY SENTENCES AS EITHER STATEMENTS OR OPEN SENTENCES

Directions:

Identify the examples below as either "phrases", "statements",
 or "open sentences".

1	$7 + 9 = 16$	7	$Y > -4$
2	$x - 3$	8	$3 + -3 = 0$
3	$3 + m > 9$	9	$2a^2 + a - 5$
4	$(6 \cdot 3) + (6 \cdot 2)$	10	$(x+1)(x-3) = 0$
5	$2p = 3p + 7$	11	$(16 - 9) \div 5$
6	$9 - 6 \leq 5$	12	$2m \leq 7$

Selected Answers:



8 . 11 . 03 . 03

8 . 11 . 03 . 04

NAME _____

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IDENTIFY SENTENCES AS EITHER EQUATIONS OR INEQUALITIES
IDENTIFY VARIABLES IN OPEN SENTENCES

Directions:

Identify each example as either an "equation", "inequality", or "neither". Indicate the symbol which represents the variable.

1	$X + 2 > 5$	5	$-4 \leq 3\pi$
	_____		_____
	Variable: _____		Variable: _____
2	$3 + 5 = 8$	6	$3p - 7 = 5p + 1$
	_____		_____
	Variable: _____		Variable: _____
3	$2Y + 6$	7	$m^2 - 9$
	_____		_____
	Variable: _____		Variable _____
4	$x^2 + 5x = 6$	8	$4 > x^2$
	_____		_____
	Variable: _____		Variable: _____

Selected Answers:

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DETERMINE SOLUTION SET GIVEN FINITE REPLACEMENT SET

Directions:

Find the solution set for each equation given the indicated replacement set for the variable.

1 $X + 5 = 12$ $x: \{1, 2, 5, 7, 9\}$	5 $a + 3 = a - 1$ $a: \{-3, -1, 0, 1\}$
2 $-8 = 2Y$ $Y: \{0, -1, -3, -5\}$	6 $X^2 = 4$ $x: \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$
3 $3P + 1 = 16$ $P: \{1, 2, 3, 4, 5\}$	7 $2m = m + 1$ $m: \{-2, -1, 0, 1, 2, 3\}$
4 $Y + 7 = 7 + Y$ $Y: \{-2, 0, 2, 4\}$	8 $ x + 1 = 2$ $x: \{-3, -2, -1, 0, 1, 2, 3\}$

Selected Answers:

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DETERMINE SOLUTION SET GIVEN INFINITE REPLACEMENT SET

Directions:

Find the solution set for each equation given the indicated replacement set for the variable.

1 $4x = 20$ $x: \{0, 1, 2, \dots\}$	5 $ y = 8$ $y: \{\text{NEGATIVE INTEGERS}\}$
2 $m - 4 = 5$ $m: \{0, 1, 2, \dots\}$	6 $6 + k = 6$ $k: \{\dots, -2, -1, 0, 1, \dots\}$
3 $2r + 2 = 0$ $r: \{\dots, -3, -2, -1, 0, 1, \dots\}$	7 $-3b = 3$ $b: \{\dots, -2, -1, 0, 1, \dots\}$
4 $p^2 = 25$ $p: \{\text{ALL INTEGERS}\}$	8 $1 + 5c = 11$ $c: \{\text{ODD INTEGERS}\}$

Selected Answers:

8 . 11 . 03 . 07

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DETERMINE SOLUTION SET GIVEN FINITE RATIONAL REPLACEMENT SET

Directions:

Find the solution set for each equation given the indicated replacement set for the variable.

1	$4X = 10$ $x: \{1, 1\frac{1}{2}, 2, 2\frac{1}{2}, 3\}$	5	$2X = -7$ $x: \{-7, -3.5, 3.5, 4\}$
2	$X + \frac{2}{3} = 2$ $x: \{\frac{1}{3}, \frac{2}{3}, 1\frac{1}{3}, 1\frac{2}{3}\}$	6	$\frac{3}{4}R = 2$ $R: \{1, 1\frac{1}{3}, 2, 2\frac{1}{3}, 3\}$
3	$p + 1.3 = 4.8$ $p: \{1.5, 2.5, 3.5, 4.5\}$	7	$.03B = 6$ $B: \{1, 2, 10, 20, 100, 200\}$
4	$3m = 6.9$ $m: \{1, 1.5, 2, 2.5, 3\}$	8	$.1Z + .1 = .1$ $z: \{-1, 0, .1, .2\}$

Selected Answers:

8.11.04

SOLVING AND GRAPHING INEQUALITIES BY INSPECTION

(Standard, 9 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.04.01 determine the solution set of an inequality in one variable given a finite replacement set of integers;
- 8.11.04.02 determine the solution set of an inequality in one variable given an infinite replacement set of integers;
- 8.11.04.03 recognize and understand set builder notation in writing solution sets of inequalities;
- 8.11.04.04 determine the solution set of an inequality in one variable given a replacement set of real numbers;
- 8.11.04.05 determine the solution set of a compound inequality given a finite or infinite replacement set;
- 8.11.04.06 graph an inequality on the real number line;
- 8.11.04.07 graph a compound inequality on the real number line.

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DETERMINE THE SOLUTION SET OF AN INEQUALITY
GIVEN A FINITE REPLACEMENT SET
DETERMINE SOLUTION SET OF AN INEQUALITY GIVEN
AN INFINITE REPLACEMENT SET

Directions:

Find the solution set for each inequality given the indicated replacement set for the variable.

1	$x > -3$	$x: \{-6, -4, -2, 0, 2\}$	5	$2k \geq 1$	$k: \{0, 1, 2, \dots\}$
2	$m + 2 \leq 0$	$m: \{-6, -4, -2, 0, 2\}$	6	$q - 3 < 1$	$q: \{0, 1, 2, \dots\}$
3	$3p > -1$	$p: \{-2, -1, 0, 1, 2\}$	7	$b^2 + 1 \geq 2$	$b: \{\text{Neg. Int.}\}$
4	$r^2 < 9$	$r: \{-3, -3, 0, 3, 5\}$	8	$ x < -3$	$x: \{\text{Integers}\}$

Selected Answers:

NAME _____

CLASS _____

DATE _____

USE SET BUILDER NOTATION IN WRITING SOLUTION SETS
OF INEQUALITIES

DETERMINE SOLUTION SET OF AN INEQUALITY GIVEN RE-
PLACEMENT SET OF REAL NUMBERS

Directions:

(1-3) Given below.

(4-8) Find solution set for each inequality given the indicated replacement set.

1 Write in set builder notation: "The set of all values of x such that x is less than 5."	5 $4a < -8$ $a: \{\text{Real numb.}\}$
2 How many values of p are contained in the solution set $\{p p \geq -3\}$, if the replacement set is the set of real numbers?	6 $\frac{1}{3}x < 1$ $x: \{\text{Real numb.}\}$
3 Name 4 elements of the solution set $\{y y < -4\}$, if the replacement set is the set of real numbers.	7 $.3y \geq 3$ $y: \{\text{Real numb.}\}$
4 $b+3 \geq 7$ $b: \{\text{Real numb.}\}$	8 $2-k < 1$ $k: \{\text{Real numb.}\}$



NAME: _____

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DETERMINE THE SOLUTION SET OF A COMPOUND INEQUALITY

Directions:

Find the solution set for each compound inequality given the indicated replacement set.

1	$1 \leq x < 5$ $x: \{0, 1, 2, 3, 4, 5, 6\}$	5	$2 < p < 9$ $p: \{\text{Integers}\}$
2	$-2 < m < 4$ $m: \{-2, -1, 0, \dots, 6\}$	6	$-1 < x < 0$ $x: \{\text{Integers}\}$
3	$0 \leq k \leq 1$ $k: \{-1, 0, 1, 2, 3\}$	7	$\frac{1}{2} \leq n < 4$ $n: \{\text{Integers}\}$
4	$-5 < r \leq -1$ $r: \{\text{Integers}\}$	8	$-3 < p \leq 1$ $p: \{\text{Real numb.}\}$

Selected Answers:

NAME _____

CLASS _____

DATE _____

GRAPH AN INEQUALITY ON THE REAL NUMBER LINE

Directions:

Graph the solution set for each inequality given the indicated replacement set.

1	The replacement set for $x < 4$ is $\{-3, -1, 0, 1, 3, 5\}$. Graph the solution set.
2	The replacement set for $x - 1 \geq 2$ is $\{0, 1, 2, \dots, 8\}$. Graph the solution set.
3	The replacement set for $3x \leq 9$ is $\{-2, 0, 2, 4, 6, 8\}$. Graph the solution set.
4	The replacement set for $x > -3$ is $\{\text{Real numbers}\}$. Graph the solution set.
5	The replacement set for $x \leq 2$ is $\{\text{Real numbers}\}$. Graph the solution set.
6	The replacement set for $x + 3 < 5$ is $\{\text{Real numbers}\}$. Graph the solution set.

Selected Answers:

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CLASS _____

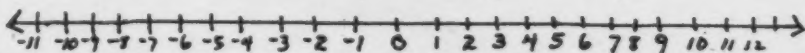
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GRAPH A COMPOUND INEQUALITY ON THE REAL NUMBER LINE

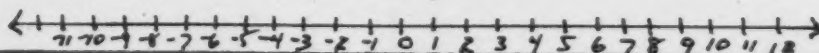
Directions:

- (1-3) Graph the solution set for each compound inequality given the indicated replacement set.
 (4-6) Determine a compound inequality where graph is indicated.

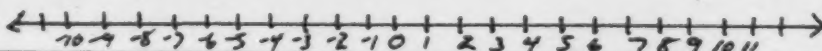
- 1 The replacement set for $-3 < x \leq 3$ is {Integers}.
 Graph the solution set.



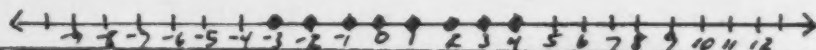
- 2 The replacement set for $1 < x < 4$ is {Real Numbers}.
 Graph the solution set.



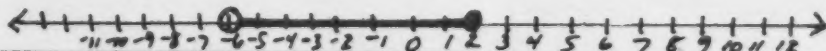
- 3 The replacement set for $0 \leq x \leq 7$ is {Real numbers}.
 Graph the solution set.



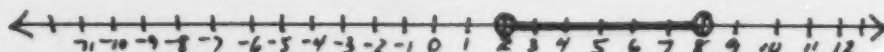
- 4 The replacement set for x is {Integers}. Determine an inequality whose solution set is indicated.



- 5 The replacement set for x is {Real Numbers}.
 Determine an inequality whose solution set is indicated.



- 6 The replacement set for x is {Real numbers}.
 Determine an inequality whose solution set is indicated.



Selected Answers:

8.11.05

SOLVING EQUATIONS BY PROPERTIES OF EQUALITY

(Standard, 15 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- *8.11.05.01 know the meaning of equivalent equations;
- 8.11.05.02 recognize equivalent equations by applying the Addition Property of Equality;
- 8.11.05.03 determine the solution set of an equation of the form $X = C$;
- 8.11.05.04 solve an equation of the form $x + b = c$ by adding $-b$ the additive inverse of b ;
- 8.11.05.05 recognize equivalent equations by applying the Multiplication Property of Equality;
- 8.11.05.06 solve an equation of the form $ax = c$ by multiplying by $\frac{1}{a}$ the multiplicative inverse of a , where $a \neq 0$;
- 8.11.05.07 solve an equation of the form $ax + b = c$, where $a \neq 0$.

* This I.O. is not tested on an ISS test.

8. 11. 05. 02

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RECOGNIZE EQUIVALENT EQUATIONS BY USING THE
ADDITION PROPERTY OF EQUALITY

Directions:

By applying the addition property of equality, add the indicated number and write the resulting equivalent equation.

1 ADD 5 $x + 2 = 9$	5 ADD 8 $y - 10 = 6$
2 ADD 3 $x - 5 = 7$	6 ADD 4 $y + 9 = 3$
3 ADD 11 $4 + x = 2$	7 ADD 1 $10 + y = 4$
4 ADD 7 $6 + x = 1$	8 ADD 6 $-2 + y = 5$

Selected Answers:

8 .11 .05 .03

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NAME

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DETERMINE THE SOLUTION SET OF AN EQUATION OF THE FORM $x = c$

Directions:

(1-4) Which equation has a solution set that is "obvious"?

(5-8) Write the solution set.

(The replacement set for the variable is the set of real numbers).

1 $4a = 12$	5 $x = 7$ $\{ \quad \}$
2 $f = 13$	6 $y = \frac{4}{5}$ $\{ \quad \}$
3 $r = \frac{5}{8}$	7 $a = -3$ $\{ \quad \}$
4 $x + 4 = 9$	8 $k = 5\frac{1}{3}$ $\{ \quad \}$

Selected Answers:

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SOLVING EQUATIONS BY THE ADDITIVE INVERSE

Directions:

(1 - 10) Write the solution set.

(11 - 20) Solve the equation.

The replacement set for the variable is the set of real numbers.

1	$y + 5 = 12$	11	$12 = x - 4$
	{ }		
2	$N - 7 = 9$	12	$9 = y + 7$
	{ }		
3	$x + 6 = 15$	13	$-18 = m + 6$
	{ }		
4	$-4 + y = 2$	14	$-1 = N - 0$
	{ }		
5	$x + 11 = 1$	15	$4 = x + 4$
	{ }		
6	$a - 2 = -3$	16	$x - 14 = 14$
	{ }		
7	$10 + r = 14$	17	$-27 + x = 6$
	{ }		
8	$m + 17 = 30$	18	$-12 = d - 7$
	{ }		
9	$8 + x = 5$	19	$-49 + b = -8$
	{ }		
10	$y - 13 = 5$	20	$y + 18 = -7$
	{ }		

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RECOGNIZE EQUIVALENT EQUATIONS BY USING THE
MULTIPLICATION PROPERTY OF EQUALITY

Directions:

By applying the multiplication property of equality, multiply
by the indicated number and write the resulting equivalent
equation.

1 Multiply by 4 $2x = 9$	5 multiply by 10 $\frac{x}{5} = 4$
2 multiply by 3 $5x = 24$	6 multiply by 14 $\frac{y}{7} = 1$
3 multiply by 5 $3y = 10$	7 multiply by 9 $\frac{a}{3} = 2$
4 Multiply by 2 $20a = 60$	8 Multiply by -12 $\frac{x}{4} = -3$

Selected Answers:

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SOLVING EQUATIONS BY THE MULTIPLICATIVE INVERSE

Directions: Solve the equation. (The replacement set for the variable is the set of real numbers.)

1	$4x = 28$	11	$15x = 5$
2	$15a = 45$	12	$32b = 8$
3	$12r = 36$	13	$\frac{x}{3} = 4$
4	$24 = 8w$	14	$\frac{N}{7} = -2$
5	$56 = 7n$	15	$11 = \frac{y}{2}$
6	$2y = -20$	16	$\frac{d}{-5} = -3$
7	$9b = -36$	17	$\frac{3}{4}x = 27$
8	$-3a = 12$	18	$\frac{2}{3}y = 18$
9	$-6c = -42$	19	$-15 = \frac{3}{5}x$
10	$16 = 8m$	20	$-\frac{4}{7}N = -16$



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SOLVING EQUATIONS BY THE ADDITIVE AND MULTIPLICATIVE INVERSE

Directions: (1-5) Find the solution set.
 (6-12) Find the root of the equation.
 (13-20) Solve the equation.

1	$2x + 3 = 13$	11	$9 = 4x - 7$
2	$7b + 8 = 71$	12	$7 + \frac{k}{3} = 8$
3	$15 = 6b + 3$	13	$3y - 6 = 12$
4	$4x - 8 = 24$	14	$2t + 5 = -9$
5	$0 = 9d - 6$	15	$3m - 4 = -18$
6	$\frac{a}{3} + 2 = 5$	16	$\frac{x}{3} - 4 = -8$
7	$12 = 3y - 6$	17	$\frac{2}{3}c + 4 = 12$
8	$\frac{N}{4} - 5 = 19$	18	$\frac{3}{4}x - 5 = 16$
9	$6s + 5 = 17$	19	$15 = \frac{3}{7}y + 9$
10	$11 + \frac{x}{2} = 15$	20	$\frac{3}{5}m + 8 = -10$

8.11.06

TRANSLATING

(Standard, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.06.01 translate number word phrases into mathematical expressions;
- 8.11.06.02 translate general word phrases into mathematical expressions;
- 8.11.06.03 translate mathematical expressions into word phrases;
- 8.11.06.04 translate number sentences into equations;
- 8.11.06.05 translate general sentences into equations;
- 8.11.06.06 translate equations into number sentences.



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TRANSLATE NUMBER WORD PHRASES INTO MATHEMATICAL EXPRESSIONS

Directions: Translate into mathematical expressions. Use x to represent the number.

1	A number increased by 7.	11	Three-fourths of a number increased by eight.
2	A number decreased by 15.	12	Two-thirds of a number decreased by six.
3	9 less than a number.	13	The sum of three times a number and seven.
4	Twice a number.	14	Twice a number exceed by 12.
5	Twice a number decreased by 4.	15	The square of a number.
6	Three times a number increased by the number.	16	The quotient of three times a number and 5.
7	Twelve more than a number.	17	The product of twice a number and three.
8	Four more than twice a number.	18	Twice the sum of a number and 8.
9	Five less than twice a number.	19	The difference between a number and twelve, increased by 10.
10	Two-thirds of a number.	20	Twice the difference between a number and 4.

8. 11. 06. 02

NAME _____

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TRANSLATE GENERAL WORD PHRASES INTO MATHEMATICAL EXPRESSIONS

Directions:

Translate into mathematical expressions.

1 A tie cost \$3. Represent the cost of "n" ties.	7 Represent the number of inches in "f" feet.
2 The width of a rectangle is "w" inches. The length is 3 inches more than the width. Represent the length.	8 Mrs. Simpson is 43 years old. Represent her age "x" years from now.
3 The rate of a train is "x" m.p.h. Represent the rate of a train which is going twice that speed.	9 Represent the number of hours in "m" minutes.
4 Mr. Pool had \$125 on him. He lost "y" dollars gambling. Represent how much he had left.	10 A man invested "x" dollars at 5%, He invested \$300 less at 4%. Represent how much he invested at 4%.
5 James is "n" years old. Represent his age 4 years ago.	11 A dozen cereal boxes cost "d" cents. Represent the cost of one box.
6 The temperature in Nome was -13° . If the temperature rose "t" degrees, represent the new temperature.	12 Represent the number of cents in "d" dimes.

Selected Answers:

8 . 11 . 06 . 03

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TRANSLATE MATHEMATICAL EXPRESSIONS INTO WORD PHRASES

Directions:

Translate into word phrases.

1 $3x$	5 $\frac{1}{2}k - 3$
2 $\frac{5B}{3}$	6 $x + 3$
3 $9 - N$	7 $3P + 2$
4 $6 + 2M$	8 $4x^2$

Selected Answers:

8. 11. 06 . 04

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TRANSLATE NUMBER SENTENCES INTO EQUATIONS

Directions:

Translate into equations.

1 Two more than a number is 17.	7 16 is the difference between a number and 5.
2 9 is 5 less than a number.	8 The square of a number decreased by 7 is 2.
3 Three times a number is 21.	9 Two less than six times a number is 18.
4 One half of a number is 6.	10 The difference between twice a number and 6 is 10.
5 The quotient of a number and 8 is 3.	11 Twice a number added to that number is 36.
6 The sum of five times a number and 4 is 29.	12 Two thirds of a number increased by 12 is 18.

Selected Answers:

8. 11. 06. 05

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TRANSLATE GENERAL SENTENCES INTO EQUATIONS

Directions:

Write as an equation.

1 9 times Jims weight is 630 lbs. what is Jims weight?	7 After spending \$40, Steve had $\frac{1}{5}$ left. How much did he have at the start?
2 The value of "q" quarters is \$2.50. How many quarters are there?	8 Bobs age next year will be 16 years old. How old is Bob?
3 A man deposited "y" dollars in his savings bank at 5% interest. at the end of the year he got \$35 interest on his deposit. How much did he deposit?	9 Six times the price is \$12.68 what is the price?
4 Jane's age 6 years ago was 7 years old. How old is Jane?	10 Twice the length of a fence is 120 ft. what is the length?
5 Lisa's weight diminished by 12 pounds is 93 pounds. what is her weight?	11 One half Johnnys speed is 35 mph. what is his speed?
6 The width of a lot is 6' less than the length. The width is 24'. what is the length?	12 The cost of one doughnut is .14 cents. A dozen cost \$1.56. How much does one cost?

Selected Answers:



NAME _____

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TRANSLATE EQUATIONS INTO NUMBER SENTENCES

Directions:

Translate into word sentences.

1 $14 - N = 2$	5 $X^2 = 81$
2 $X + 13 = 26$	6 $12 = 3M + 7$
3 $5K = 35$	7 $2R + 1 = 11$
4 $\frac{K}{6} = 4$	8 $\frac{3}{4}P - 10 = 2$



Selected Answers:

8.11.07

VERBAL PROBLEMS

(standard, 5 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

8.11.07.01

solve number word problems involving
equations of the form $ax+b=c$;

8.11.07.02

solve general word problems involving
equations of the form $ax+b=c$.

8 .11 .07 .01

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NAME _____

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SOLVE NUMBER WORD PROBLEMS INVOLVING SIMPLE EQUATIONS

Directions:

Write an equation for each problem and solve.

1 A number increased by 8 is 15. what is the number?

2 Four times a number is -44. what is the number?

3 If 7 is subtracted from a number the result is 2. what is the number?

4 10 more than a number is 3. what is the number?

5 The sum of twice a number and 5 is 17. Find the number.

6 Three times a number diminished by -7 is -28. Find the number.

Selected Answers:

8 . 11 . 07 . 01

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NAME _____

CLASS _____

DATE _____

SOLVE NUMBER WORD PROBLEMS INVOLVING SIMPLE EQUATIONS

Directions:

Write an equation for each problem and solve.

7 ONE-half of a number is 16. what is the number?

8 Five less than $\frac{1}{4}$ of a number is one. what is the number?

9 The difference between 3 times a number and eight is ten. FIND the number.

10 The quotient of a number and 5 is 7. what is the number?

11 ONE-third of a number exceeded by 2 is 7. what is the number?

12 The product of a number and four diminished by five is eleven. what is the number?

Selected Answers:

8 . 11 . 07 . 02

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SOLVE GENERAL WORD PROBLEMS INVOLVING SIMPLE EQUATIONS

Directions:

Write an equation for each problem and solve.

1 Donald traveled 6 times as far as John. Donald traveled 48 miles. How far did John travel?

2 Sally grew $3\frac{1}{2}$ inches during the summer. She is now $56\frac{1}{2}$ inches tall. How tall was she prior to the summer?

3 The length of a rectangle is 3" less than twice the width. The length is 15". What is the measure of the width?

4 Howard has \$8 more than three times the amount of money that Sam has. Howard has \$44. How much money does Sam have?

5 Five years ago Susan was the same age as Marge is now. Marge is 17 years old now. How old is Susan now?

6 Larry's time working exceeded one half Bill's by 12. Larry worked 40 hours. How many hours did Bill work?

Selected Answers:

8. 11. 07. 02

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SOLVE GENERAL WORD PROBLEMS INVOLVING SIMPLE EQUATIONS

Directions: Write an equation for each problem and solve.

7. Jerome traveled 3 times as far as his son traveled. Jerome traveled 81 miles. How far did his son travel?

8. The length of a rectangular garden is 19 feet more than three times its width. The length is 139 feet. How wide is the garden?

9. Susan earned as a typist two-thirds the amount of money that her sister Katora earned. Susan earned 38 dollars. How much did Katora earn?

10. Three times Cain's age is 8 more than Noah's age. If Noah is 46 years old, how old is Cain?

11. The larger of two numbers is 6 less than twice the smaller. If the larger number is 36, find the smaller number.

12. The number of pupils in the 8th grade exceeds one-half the number of pupils in the 7th grade by 85. If the number of pupils in the 8th grade is 345, how many pupils are in the 7th grade?

11

8.11.08

SOLVING INEQUALITIES BY PROPERTIES OF INEQUALITIES

(advanced, 8 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- *8.11.08.01 know the meaning of equivalent inequalities;
- 8.11.08.02 recognize equivalent inequalities by applying the Addition Property of Inequalities;
- 8.11.08.03 solve an inequality of the form $x + b > c$, $x + b \geq c$, $x + b < c$, or $x + b \leq c$ by adding "-b" the additive inverse of "b";
- 8.11.08.04 recognize equivalent inequalities by applying the Multiplication Property of Inequalities;
- 8.11.08.05 solve an inequality of the form $ax > c$, $ax \geq c$, $ax < c$, $ax \leq c$, or $ax = c$ by multiplying by " $\frac{1}{a}$ " the multiplicative inverse of "a", where $a \neq 0$;
- 8.11.08.06 to solve an inequality of the form $ax + b > c$, $ax + b \geq c$, $ax + b < c$ or $ax + b \leq c$, where $a \neq 0$.

*This I.O. is not tested on an I.S.S. Test.

8.11.09

FINDING SOLUTIONS AND GRAPHING A LINEAR EQUATION

(advanced, 12 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.11.09.01 recognize solutions of linear equations in two variables;
- 8.11.09.02 determine the solutions of linear equations in two variables, given a replacement for one variable;
- 8.11.09.03 determine a finite set of solutions of linear equations in two variables;
- 8.11.09.04 associate points in a Cartesian Plane with an ordered pair of Real Numbers;
- 8.11.09.05 graph a finite solution set of a linear equation in two variables;
- 8.11.09.06 recognize a linear equation in two variables.

TOPIC 12

GRAPHS, PROBABILITY, AND STATISTICS

8.12.01 Probability (advanced, 6 days)

8.12.02 Statistics (advanced, 5 days)

8.12.01

PROBABILITY

(advanced, 6 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- 8.12.01.01 know the meaning of outcomes, events,
and sample space;
- 8.12.01.02 construct a sample space of various
experiments;
- 8.12.01.03 know the probability of an event is a
ratio of successful outcomes to total
outcomes;
- 8.12.01.04 determine the probability of an event;
- 8.12.01.05 recognize that the probability of an
event is always greater than or equal
zero and less than or equal 1;
- 8.12.01.06 determine that the probability of event A
and event B is the product of the probabili-
ties (when the events are independent).

8.12.02

STATISTICS

(advanced, 5 days)

INSTRUCTIONAL OBJECTIVES

The student will be able to ...

- | | |
|------------|--|
| 8.12.02.01 | distingusih grouped data from ungrouped data; |
| 8.12.02.02 | determine the range for a given set of data; |
| 8.12.02.03 | organize ungrouped data into a frequency distribution chart; |
| 8.12.02.04 | determine the mean for a set of given data; |
| 8.12.02.05 | determine the median for a given set of data; |
| 8.12.02.06 | determine the mode for a given set of data. |